The low carbon commute: Rethinking the habits that connect home and work in Auckland and London through John Dewey's pragmatism

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Abstract

Neoliberalism has fundamentally altered how diverse sectors such as energy, health, and transport have come to be understood and governed. In exercising their 'freedom of choice' individual consumers are now held responsible for the social or environmental consequences of their decisions and actions. States have accordingly sought to intervene, influence and change the choices of citizens in a variety of spheres of everyday life. This thesis, by exploring how they understand action, demonstrates why these interventions are severely limited. It examines different approaches which have or could inform such interventions and how they theorise, research, and propose to, govern citizen's actions. Of those considered, it argues John Dewey's pragmatist writings, especially on habit and experience, by providing a dynamic understanding of how action continually emerges out of an individual's interactions with their social and physical environments are particularly pertinent.

The relevance of this approach for contemporary sustainability and climate change debates is demonstrated through a focus on commuting, which has become a central concern of various behaviour change agendas. The thesis draws on a range of empirical materials generated and collected through interviews, go-alongs and ethnography during fieldwork with local and migrant workers in Auckland, New Zealand and London, United Kingdom. The methodology aimed to produce a range of data on the stable and dynamic aspects of the internal and external environments, and phases, of action. These empirical materials are employed to demonstrate both the limitations of the dominant psychological and economic behavioural models and the potential of a Deweyan-inspired approach for understanding action.

The thesis is structured around three associated interventions. First, the soft or libertarian paternalist concept of 'choice architecture' is explored. This approach it is suggested is limited in that it fails to problematize and politicise the notion of choice or account for the emergence of purposive and meaningful action. The notion of 'habit infrastructures' is introduced as a way of recognising how subjectivities and preferences are always conditioned but not determined by the histories and politics of

physical environments and established social norms, values and ideologies, as individuals always retain the capacity to act upon the world.

Second, the notion that various 'barriers' prevent individuals from making more sustainable choices is critiqued. The concept is too static, fixed, ahistorical and individualistic to account for the complexities of action and social change. It is demonstrated that such a framing offers little insight into why the number of year round cyclists is increasing in Auckland and London, and how regular commuter cyclists anticipate, experience, and negotiate changing weather conditions alongside a range of other everyday routines and practices. Dewey's theory of situations is instead shown to provide a way of understanding the continuous and contingent contexts in which these experiences unfold and associated habits emerge.

Third, dominant behavioural models typically conceptualise habit and thought as polar opposites. Following Dewey the thesis argues they are better understood as phases within human experience. This argument is developed by exploring how people's commuting practices emerge out of repeated encounters with particular environments. The transition from the unfamiliar to familiar is marked by a development of new habits which alter people's sense and experience of these environments and allow them to negotiate and adjust to changes in these contexts often with little or no thought. Dewey thus can provide a useful starting point for rethinking the relationship between habit and thought in future interventions.

Given the social, economic and political uncertainties it is unlikely that existing urban infrastructures and systems will be radically reconfigured in the near future. Even if they were, history reminds us technology without accompanying social change will not be sufficient to address crises such as climate change. Behaviour change interventions, therefore, will likely remain a primary policy response to the challenges posed by increasing carbon emissions, resource consumption and demand. This thesis contends such interventions need to move beyond existing dominant behavioural models if they are to facilitate change. John Dewey, with his tenacious insistence on the situated, relational, more-than-individual and emergent character of action, provides an alternative approach which helps to reveal both the challenges and possible openings for developing a less carbon and resource intensive world.

Table of Contents

List of Tables

List of Figures

Declaration

I, Brendan James Doody, declare that this thesis represents my own work and has not been previously submitted for the award of any other academic degree or diploma. I certify that the use of material from other sources has been properly and fully acknowledged.

Statement of Copyright

Acknowledgements

> To know where we stand toward Dewey's ideas is to find out, at least in part, where we stand with ourselves (Frankel, 1960, p. 314).

Engaging with John Dewey's work, as Charles Frankel (1960) observes, is very much a process of self-discovery. For me, one of the most profound lessons I take from his work is that *who* we are is not predetermined but rather continually emerges out of our interactions with the social and physical worlds we inhabit. To this end I have been immensely fortunate to be surrounded by such wonderful friends, family, colleagues, staff, and research participants throughout my PhD. Words cannot fully express my gratitude to you all, but unfortunately for now they will have to suffice.

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Chapter 1.
Introduction: Behaviour change, climate change and everyday mobility

We are everyday robots on our phones,
In the process of getting home,
Looking like standing stones,
Out there on our own.
We are everyday robots in control,
Are in the process of being sold,
Driving in adjacent cars,
Till you press restart.
[…]
Everyday Robots, Damon Albarn (2014).

Everyday Robots, the title track to Damon Albarn's 2014 album, was inspired by his experience of being stuck in the 'mother of all traffic jams' in Los Angeles: 'I was just watching everyone around me… lost in their [own] little … worlds, on the telephone and listening to music, and that sense of autonomy … resonated [with me]' (XFM, 2014). His subsequent lyrics capture the way in which the everyday commute is variously experienced as solitary ('Out there on our own') yet shared ('adjacent cars'), mundane ('everyday robots'; 'Looking like standing stones') and distracted ('on our phones'). Meanwhile, passing references to 'process', 'control' and 'driving' remind the listener of the purposeful, active and repetitive ('Till you press restart') nature of these journeys. Inadvertently Albarn captures a number of themes that run throughout this thesis. It explores contemporary commuting habits and experiences in Auckland, New Zealand and London, United Kingdom (hereafter UK) in the context of current debates on behaviour change, climate change and mobility. Moreover, his metaphor of the 'everyday robot' usefully draws attention to the challenge confronting states seeking to 'reprogramme' the 'transport choices' of citizens in less resource and carbon intensive ways, especially given their seemingly hardwired 'habits' (cf. DfT, 2011).

The aim of this chapter is to contextualise and provide a general overview of the thesis. The remainder of the chapter comprises four sections. First, Sections 1.1 and 1.2 position the thesis in the context of broader debates around sustainability, climate change, everyday mobility and behaviour change. Second, Section 1.3 situates the aims and research questions of the thesis in relation to these debates. Third, Section 1.4 outlines the empirical and theoretical contributions the thesis makes to emerging debates on and approaches to behaviour change, climate change and mobility. Fourth, Section 1.5 details the structure of the thesis by providing an overview of the purpose and main arguments of each of the six remaining chapters.

1.1 The problem with movement: Sustainability, climate change and transport

This section reflects on how the thesis intersects with contemporary environmental debates. It examines how sustainability and climate change agendas have become increasingly concerned with the ecological implications of everyday movements in cities and how these interconnect with broader social, cultural and political dynamics.

1.1.1 Sustainability and climate change

The contemporary challenges of sustainability and climate change have profoundly shaped the ways in which the relationships between human, ecological and economic systems have come to be understood, managed and governed (Bulkeley & Betsill, 2003; Bulkeley & Newell, 2010; Vallance et al., 2011; Whitehead, 2007). The Brundtland Report, for example, argued the necessity of '[d]evelopment that meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987, p. 40). Meanwhile, the IPCC's (1990, p. 52) *First Assessment Report (FAR)* drew attention to the fact that human activities were 'substantially increasing the atmospheric concentrations of greenhouse gases' resulting in 'a significant disturbance of the natural carbon cycle' (p. 52). It concluded that industrialised countries needed to 'adapt their economies' in ways that 'limit emissions' (IPCC, 1990, p. 52). Both of these influential reports highlighted how issues of population, food security, energy, industry, human

settlement and transport could not be considered in isolation from one another and thus emphasised the need for change across all sectors of society.

The language of subsequent IPCC (2007; 2014, p. 2) reports has been strengthened to the extent where it is now observed that '[h]uman influence on the climate system is clear' (p. 2) and that '[c]ontinued emission of greenhouse gases' will result in an increasing 'likelihood of severe, pervasive and irreversible impacts for people and ecosystems' (p. 8). Notably, they observe that the substantial emissions reductions required to limit warming to below 2°C relative to pre-industrial levels pose 'substantial technological, economic, social and institutional challenges' (p. 20) and will require 'policies and cooperation at all scales' including 'effective institutions and governance, innovation and investments in environmentally sound technologies and infrastructure, sustainable livelihoods and behavioural and lifestyle choices' (IPCC, 2014, p. 25). For a number of reasons, transport (Banister, 2011; Hickman & Banister, 2014; Schwanen et al., 2011) and cities (Bulkeley & Betsill, 2003; Bulkeley & Newell, 2010) are considered to be particularly important in relation to debates on sustainability and climate change.

1.1.2 Transport, the city and commuting

The International Energy Agency (2012) suggests that nearly 94% of all freight and passenger transport relies on oil and, therefore, their continued growth ensures they remain a significant cause of anthropogenic climate change (Sims et al., 2014). In 2011, transport accounted for 27% of global energy consumption and 22% of CO_2 emissions (IEA, 2012, 2013). It is considered to be one of the most challenging sectors to decarbonize (Sims et al., 2014), 'given the myriad obstacles that exist to deep cuts in emissions and energy consumption through a combination of fewer and shorter trips, use of other transport modes, deployment of more fuel efficient vehicles, and utilization of less carbon-intensive fuels' (Schwanen, 2015, p. 4; Schwanen et al., 2011). Cities are one site where attempts to reduce the resource and carbon intensive character of the transport sector have been initiated (see Hickman & Banister, 2014).

Cities are considered to be important locales for addressing issues of sustainability and climate change in relation to a number of different sectors including transport for

at least three reasons (Banister, 2008, 2011; Bulkeley, 2010; Bulkeley & Betsill, 2003; Hickman & Banister, 2014; Whitehead, 2003). First, cities are sites 'of high consumption of energy' and local authorities potentially have power to influence these processes through 'stronger use of the planning and land use development processes' (Banister, 2011, p. 1538; Bulkeley & Betsill, 2003). Second, 'local authorities have been engaging with issues of sustainable development' in ways 'that have implications for the mitigation of climate change' (Bulkeley & Betsill, 2003, p. 2). Third, 'local authorities have considerable experience in addressing environmental impacts within the fields of energy management, transport and planning, and many have undertaken innovative measures and strategies to reduce their impact on climate change' (Banister, 2011; Bulkeley & Betsill, 2003, p. 2; Hickman & Banister, 2014).

Commuting intersects both concerns regarding energy and climate change, as well as, debates over the role cities may play in responding to these challenges (Hensher, 2008; Watson, 2012). The term 'commute' has become 'shorthand for the daily journey between work and home' (Lyons & Chatterjee, 2008, p. 181) and is believed to originate from the ''commuting' of fares paid by nineteenth century Americans regularly travelling to work by train' (Aldred, 2014, p. 450). The commute presents both a problem and opportunity for policy-makers seeking to facilitate less resource and carbon intensive modes of living (see Aldred, 2014; Lyons & Chatterjee, 2008). In most cities the private car remains the dominant mode of everyday mobility (Hickman & Banister, 2014; Sheller & Urry, 2000) which has implications not only for sustainability and climate change but also local air quality (Grimmond et al., 2010), congestion (Flink, 1988), social exclusion and isolation (Preston & Rajé, 2007; Stanley & Lucas, 2008) and public health and wellbeing (Lyons & Chatterjee, 2008; Sallis et al., 2004). The routine and repeated nature of these journeys and the significant numbers of people travelling during 'peak times' (Lyons & Chatterjee, 2008), however, can potentially enable the development of alternative and sustainable modes of 'public' transport including rail, bus, car-pooling and car sharing (Hickman & Banister, 2014; Kent & Dowling, 2013). Moreover, the mutual benefits of promoting 'active' modes of transport such as walking and cycling for the environment (i.e., emissions reductions, improvements in air quality) and health (i.e., physical exercise, stress reduction, weight loss, improvements in cardio-respiratory

fitness) are increasingly recognised (see Rabl & de Nazelle, 2012; Sallis et al., 2004; Woodcock et al., 2009). These diverse rationales illustrate how daily journeys such as the commute are more than simply environmental problems and are intimately interconnected with broader social, cultural and political dynamics that shape various aspects of everyday life associated with home, work, school and leisure. Simultaneously, such rationales demonstrate why 'the commute' has become a site of importance for various behaviour change agendas. Section 1.2 now examines why attempts to understand everyday movement and to intervene, influence and change behaviour have come to focus on the autonomous or sovereign individual.

1.2 The rise of the individual: Transport, neoliberalism and behaviour change

The ways in which everyday movement has been theorised and understood both in research and policy has historically been dominated by transport studies which includes the subdisciplines of transport geography, transport economics, transport planning and transportation engineering (Law, 1999; Shaw & Sidaway, 2011) and urban planning (Banister, 2008; Sennett, 1994). The emergence of these disciplines, modern understandings of transport and attempts to regularise and govern movement have been traced back to William Harvey's scientific discoveries in relation to the blood and respiratory systems of the human body (see Paterson, 2007, pp. 126-132; Sennett, 1994, pp. 255-281). Metaphors of circulation and flow subsequently came to guide the principles of urban design as enlightened planners wanted the city's streets to be as clean, free flowing and efficient as a 'healthy body' (Foucault, 2007; Sennett, 1994, p. 263). It was during this period which 'travel was reconceptualised as *transport*' (Paterson, 2007, p. 131) or, more specifically, 'the movement from one point to another in order to participate in the activities at the 'trip destination'' (Bonham, 2006, p. 58). Movement, particularly in urban settings, 'was increasingly calculated, monitored and planned, but at the same time valued according to its purposefulness and efficiency of with which the journey was undertaken' (Paterson, 2007, p. 131). Efficient movement thus emerged as the principle which guided the 'arrangement of street-space and the ordering of urban traffic' (Bonham, 2006, p. 58) and as part of what became during the twentieth century transport studies and urban planning, 'as both academic disciplines and practices of city governments' (Paterson,

2007, p. 132). These developments have had at least two main implications. First, movement is understood as being derived from pre-existing demands at trip destinations such as work, shopping, leisure or housing. Second, trips are assumed to be made by sovereign individuals, each 'contained in a body' that is a distinct, autonomous and 'equivalent unit' that can be modelled as 'discrete entities' with separate trajectories (Law, 1999; Manderscheid, 2014). Such individualistic understandings have and continue to inform research and policy debates around transport, sustainability and climate change. These debates, however, also need to be understood in relation to the neoliberal reordering of social, economic and environmental life since the mid-to-late 1970s and the emergence of the behaviour change agenda.

1.2.1 Neoliberalism and the emergence of behaviour change agenda(s)

The autonomous and sovereign individual has also become a central figure in the neoliberal government and the behaviour change agenda. Neoliberalism has fundamentally altered the ways in which various sectors including energy, water, housing, health, and transport have come to be understood and governed in ways that have had implications for the environmental agenda. The privatisation, marketisation and deregulation of many of these sectors (Castree, 2010; Harvey, 2005) has resulted to a shift away from a production or provision-ethos of social policy where the demand and supply of such utilities or services were typically justified on the grounds of social welfare, population growth or macro-economic development (Cohen, 1998). The withdrawal or reduction of state intervention in, and the commodification of, such sectors has subsequently contributed to the development of a more consumer-oriented ethos, which is, underpinned by a belief that the market maximises freedom, centres on lifestyle, behaviour and individual choice (Castree, 2010; Cohen, 1998). States are in many instances now acting more as market managers than providers who through privatisation and marketisation seek to establish conditions which maximise individual freedom and choice and reduce the dependence of individuals and communities on the state for the provision of the necessities of life (Castree, 2010; Harvey, 2005). This changing role has also entailed a redistribution of responsibility from states to individuals and households who in

exercising their 'freedom of choice' as consumers are held responsible for any consequences of their decisions and actions (Castree, 2010).

This consumer-centric ethos and autonomous understanding of freedom, choice and responsibility, has significantly shaped state responses to sustainability and climate change. This is apparent in a number of recent transport policy documents in New Zealand and the United Kingdom. For example, the *New Zealand Transport Strategy* (MoT, 2008, p. 5) which presents the government's vision for an 'affordable, integrated, safe, responsive and sustainable transport system' in 2040 notes the important role that individual citizens will play in ensuring the successful delivery of the vision and in addressing climate change:

> [The] success [of the strategy] will depend on the everyday transport decisions and choices of individuals – where to live and work, what type of vehicle to purchase (if any) and how to travel. Behaviour change by New Zealanders will be essential if the growth in carbon emissions and other adverse effects of transport are to be reduced (MoT, 2008, p. 80).

Similarly, *Door to door: A strategy for improving sustainable transport integration* outlines the UK Coalition Government's vision for an 'inclusive, integrated and innovative transport system' where 'making door-to-door journeys by sustainable means is an attractive and convenient option' (2013, p. 8). Understanding and influencing individual's travel choices is considered to be critical to achieving this vision and reducing transport related carbon emissions. Here, establishing what motivates these choices, 'why people do not travel sustainably even when it is a viable option, and what deters them from making this choice' are seen as particularly important (DfT, 2013, p. 13). The sentiment running through these and a number of other environmental policy documents (Defra, 2005, 2007, 2008; DfT, 2011; MfE, 2007, 2008) is that a sea change in the behaviour of individual consumers, especially their everyday decisions and choices, is a prerequisite of a transition to a more sustainable and low carbon society (Shove, 2010; van Vilet et al., 2005). This philosophy, and the neoliberal agenda which underpins it, has legitimised substantial programmes of social environmental research which have sought to establish the economic and psychological determinants of human behaviour (for a review see Jackson, 2005). Moreover, it has contributed to the emergence of the behaviour

change agenda which in various ways are informed by the empirical and theoretical insights generated by these programmes.

Jones et al. (2013a; 2013b, p. 164) argue there have recently been concerted, but not necessarily unified, attempts to recognise how efforts directed at changing the 'behaviour of purportedly irrational individuals, communities and populations' can be enhanced by such insights (although see Rose, 1999, pp. 22-52). They illustrate how such attempts have arisen out of 'very different political priorities, media-induced crises and institutional changes' including climate change but also excessive alcohol consumption, obesity, problem gambling and road safety (Jones et al., 2013a, p. 42). In charting the evolution of the behaviour change agenda, Jones et al. (2013a) emphasise the need to understand that it has emerged at the 'intersection of the private, public and third sectors' rather than simply within the 'bureaucracies of central government' (p. 42). Moreover, they underscore the importance of recognising the 'multiple, sometimes competing, policy formulations' which employ behavioural science insights in the course of developing public policy and the 'hybrid forms that behavioural policy actually take' with the 'precise mix of ideational framing and practical expression' varying from 'from one behavioural initiative to another' (Jones et al., 2013a, p. 42). This plurality and hybridity does not extend to the intellectual antecedents which underpin these behaviour change agendas, however, as individualistic approaches from especially psychology and economics continue to dominate (Burgess et al., 2003; Shove, 2010). The insights provided by these and other behavioural sciences are considered central to the development of neoliberal techniques and strategies for developing 'subjects of responsibility, autonomy and choice' (Rose, 2006, p. 155), as well as, correcting the 'social, ecological, economic and individual harms' of neoliberalism (Jones et al., 2013b, p. 170; Peck, 2010). As Section 1.3 elaborates the failure of these strategies and techniques, including programmes of behaviour change directed at transforming citizen's everyday movements, have been attributed to their underpinning assumptions about the actions and decisions of individuals (see also Section 2.3.3).

1.3 Situating the research and its aims

There is a growing consensus amongst policy-makers (DfT, 2011; MoT, 2008), scientists, modellers and engineers (Ribeiro et al., 2007; Sims et al., 2014) and transport academics (Anable et al., 2012; Banister, 2008; Chapman, 2007) that 'at least some level of behaviour change is unavoidable if carbon emissions from transport are to be reduced significantly' (Schwanen et al., 2012, p. 522). Individualistic accounts of human behaviour have and continue to dominate the ways in which climate change (Shove et al., 2012; Urry, 2011) and transport (Manderscheid, 2014; Schwanen et al., 2011, 2012) have been theorised, understood and governed (Shove, 2010; Spaargaren, 2011). Behaviour change policies and interventions seeking to encourage individuals to make more 'sustainable transport choices' (DfT, 2011, p. 8) have had limited success. Globally the use and ownership of, and fossil fuel consumption and carbon emissions associated with, private cars have continued to increase (Hickman & Banister, 2014; Sims et al., 2014). Even though reductions in car use per capita or 'peak car' (Headicar, 2013; Metz, 2010, 2013; Meyer et al., 2012), and corresponding increases in public transport patronage (Kenworthy, 2013) have been observed in some cities, the causes underlying these changes are complex and not easily attributed to individual transport choices (Goodwin & Van Dender, 2013; ITF, 2011).

Recognising the limitations of individualistic approaches and the challenges of sustainability and climate change a range of scholars have sought to theoretically and empirically demonstrate how resource use and consumption (Burgess et al., 2003; Burgess et al., 1998; Hinchliffe, 1996; Shove, 2003; Shove et al., 2012; Spaargaren & Van Vliet, 2000; van Vilet et al., 2005; Warde, 2005) and everyday mobility (Banister, 2008; Bissell, 2010, 2014b; Larsen et al., 2006; Manderscheid, 2014; Schwanen et al., 2012; Sheller & Urry, 2006; Urry, 2004, 2007) are embedded within particular spatial, material, political, economic, cultural, social and personal contexts predominantly by engaging with socio-technical (Section 2.4.1), socio-cultural and practice approaches (Section 2.4.2). These diverse approaches in different ways emphasise the need to move beyond dominant individualistic models of behaviour and transport and to reconsider the internal and external environments, and habitual and reflective phases, of action. Instead insisting upon the importance of developing

approaches and interventions which recognise how individual action (habitual and reflective) is enabled, constrained, permitted, and rendered possible in, and emerges out of, particular social and physical environments. The thesis engages with these approaches and wider scholarship on John Dewey's pragmatism to propose a conceptual framework predicated on understanding the situated, relational, more-than-individual and emergent character of action.

1.3.2 Research aims, objectives and questions

Drawing on this conceptual framework the thesis has two related aims:

1. To identify the limitations of dominant understandings of the environments and phases of action in the context of behaviour change, climate change and everyday mobility.
2. To demonstrate the ways in which a Deweyan-inspired approach provides a way of rethinking and advancing existing approaches to understanding the environments and phases of action.

In doing so the intention is to contribute to critical studies of behaviour change, climate change and mobility by providing a dynamic understanding of how action and subjectivity continually emerge out of an individual's interactions with their social and physical environments. These research aims are addressed in the thesis through empirical fieldwork in Auckland and London which has two objectives. First, to critically explore how the histories, politics and materialities of physical environments and established social norms, values and ideologies *condition* people's habits and experiences of commuting in Auckland and London. Second, develop a Deweyan-inspired approach for undertaking research on contemporary urban commuting habits and experiences.

The research questions are correspondingly aimed at developing both conceptual and empirical responses to the research aims and objectives. These are:

1. How, why and with what consequences can the relationship between individuals and the social and physical environments of action be considered in non-dualistic and non-individualistic ways?
2. How, why and with what implications might habit be understood as more than simply unreflexive and automatic responses to environmental cues?

3. How, why and with what implications might the relationship between habit and thought be understood in a manner which is non-dualistic and non-individualistic?
4. What role do habit, experience and social and physical environments play in shaping subjectivity?

The purpose behind each of these research questions is to ensure the thesis addresses broader debates around behaviour change, climate change and everyday mobility. Chapter 2 provides an overview of these issues and the conceptual grounding for the more selective and empirically-driven responses to each of the research questions. The first question generates the focus of the study on the social and physical environments of Auckland and London and how they condition individual's commuting habits, experiences and subjectivities and is examined explicitly in Chapter 4 and in less detail in Chapters 5 and 6. The second research question seeks to move beyond understandings of habit as simply individualistic, automatic and mechanistic to consider habit as a dynamic and emergent entity which is decentred and distributed between body, mind and world. This question is addressed in different ways Chapters 4, 5 and 6. The third question seeks to rethink the relationship between habit and thought and draw attention to the ways in which thought is always more-than-individual and relational and is explored indirectly in Chapter 4, briefly in Chapter 5 and then in greater detail in Chapter 6. The fourth research question seeks to acknowledge that state-led behaviour change initiatives aimed at generating less resource and carbon intensive ways will by necessity involve not only changing physical infrastructures but also creating new individuals or subjectivities. This question is addressed most explicitly in Chapter 4 but also emerges in different ways in Chapters 5 and 6.

1.4 Contributions of the thesis

The thesis aims to make empirical and theoretical contributions to emerging debates on and approaches to behaviour change, climate change and mobility in three main ways. This contribution is predicated on a Deweyean-inspired approach which recognises how action continually emerges out of an individual's interactions with their social and physical environments. First, drawing on empirically grounded

fieldwork in Auckland and London the thesis illustrates the importance of understanding the ways in which commuting habits and experiences are always situated, relational, more-than-individual and emergent. The need to produce such knowledge is essential given behaviour change research and policymaking continues to be dominated by individualistic accounts of attitudes, behaviour and choice (Burgess et al., 2003; Shove, 2010). Theories of consumption (Gronow & Warde, 2001; Southerton et al., 2004; van Vilet et al., 2005) and theories of practice (Shove et al., 2012; Spaargaren, 2011; Warde, 2005) have instead illustrated the need to understand how social, political and material contexts contribute to the ways in which resources are routinely used and consumed as part of habitual and mundane everyday practices. The thesis seeks to add to and advance these literatures by providing a more nuanced understanding of habit which recognises their role in continuity and change, thought and reflection, and constituting the self. In the process it also adds to emerging critical scholarship on habit (Bissell, 2014b; Carlisle, 2010, 2014; Dewsbury & Bissell, 2015; Schwanen et al., 2012; Sinclair, 2011) and behaviour change (Jones et al., 2011; Pykett, 2012; Shove, 2010; Webb, 2012; Whitehead et al., 2011).

Second, the thesis develops a 'more sophisticated appreciation of movement' by engaging with existing debates in mobilities and transport geography literatures (see Section 2.2). Although primarily informed by the mobilities literature the thesis is still very much concerned with questions of policy relevance, a hallmark of much work in transport geography (Shaw & Hesse, 2010). It is not that mobility scholars are not actively engaged in (Jain & Lyons, 2008; Lyons & Urry, 2005), or unaware of the contribution their research could make to existing policy debates (Middleton, 2011; Spinney, 2009). Mobility scholars[1] have not had the same sustained engagement that transport geographers have had with questions of sustainability (Banister et al., 1997; Greene & Wegener, 1997) and climate change (Banister, 2007; Banister et al., 2011; Givoni & Banister, 2013). The thesis in this way takes seriously Shaw and Hesse's (2010) call for a closer working relationship and understanding between these two geographical strands of thought and scholarship. Thus it contributes to mobilities research by not only examining the 'specificity of particular

[1] John Urry (Dennis & Urry, 2009; Urry, 2004, 2008, 2013a) and Matthew Paterson (2007, 2014) are perhaps the main exceptions here.

practices of mobility' but also their relationship with broader 'social and political imperatives and structures' (Paterson, 2014, p. 570) and the possible implications such insights might have for policy. Simultaneously it seeks to advance transport geography by revealing how mobilities-inspired research can help to move beyond individualistic accounts of 'travel behaviour' which tend to dominate the subdiscipline (Schwanen et al., 2012).

Third, it contributes to literatures on sustainable (Bulkeley & Betsill, 2003, 2005; Whitehead, 2007) and low carbon cities and societies (Bulkeley et al., 2011; Bulkeley et al., 2013; Shove et al., 2008; Urry, 2013a; While & Whitehead, 2013). The thesis seeks to illustrate the potential for Deweyean pragmatism to inform transitions to a less resource intensive and carbon dependent modes of living. Drawing inspiration from John Urry's recent writings the focus here is on attempting to 'consider some of the possible futures that lie in store for different societies over the next few decades' (Dennis & Urry, 2009; Urry, 2011, p. 139; 2013b). In contrast, to Urry who relies on scenarios, the thesis seeks to highlight the insights that might be generated from contextualised and empirically grounded research. Although it is impossible to anticipate the likelihood of disruptive innovation it is highly likely that walking and cycling, alongside other modes of low carbon and motorised transport, will become increasingly more important in less resource intensive societies (Dennis & Urry, 2009). While recognising the inherent uncertainties involved in this task (Urry, 2011), it is asserted that the insights generated from this study can help to identify both some of the challenges and opportunities for facilitating a shift to decarbonised transport systems and societies. The focus of the thesis thus is on attempting envision what low carbon forms of commuting might look like rather than specifically identifying how these shifts might be made.

1.5 Thesis structure

The remainder of the thesis is comprised of six chapters. The aim of **Chapter 2** is two-fold. First, it examines four different approaches which have or could inform behaviour change interventions paying attention to how they theorise, research, and propose to, govern citizen's actions. Second, and relatedly, outlines the conceptual framework which is used to critically analyse how contemporary commuting habits

in Auckland and London emerge, persist and change. The chapter commences by drawing a distinction between the internal and external environments, and habitual and reflective phases of action. This schematic is then used to elaborate the four approaches to understanding action, these are: 1) individualist, 2) socio-technical; 3) practice; and 4) Deweyean pragmatism. Despite their historical, empirical and theoretical differences it is noted there is an overall consensus among these approaches that the habitual phase of action tends to dominate conduct. Underpinned by dualistic thought and notions of autonomous 'choice' and habits as unreflexive and automatic responses, it is argued individualist approaches provide a rather static and limited interpretation of action. The remaining three approaches, in contrast, provide more dynamic and relational accounts which are sensitive to the ways in which individual 'choice' is always conditioned by the social and physical or material contexts in which action unfolds. The thesis argues, of these three approaches, John Dewey's pragmatism with its emphasis on flow and process and continuity and change provides the best conceptual framework for understanding how habitual and reflective action continually emerge out of an individual's interactions or 'transactions' with their social and physical environments.

Chapter 3 discusses the methodological approach of the thesis and more general issues associated with methodology. It begins by examining how the initial conception of the research which subsequently influenced the fieldwork and guided methodology was developed. Building on this the chapter then reflects on research design and how the sites of research and participants were selected with the intention of exploring the ways in which practices of thermal comfort are conditioned by particular social and physical contexts. This section elaborates on how while the project shifted from an initial focus on thermal comfort and practices to mobility and Deweyan pragmatism the emphasis remained on understanding the role context plays in conditioning, in particular, habitual and mundane action. The chapter goes on to explore the challenges associated with researching habits, routines and mundane practices and the different approaches researchers have employed to address these challenges. In developing this account particular attention is paid to instances of habit hitches, conflicts and shocks where taken-for-granted, embodied and automatic ways of operating are questioned, contested or interrupted and how these ideas informed the pilot research and subsequent development of the methodology. The

sections that follow then elaborate on the various approaches employed during the pilot and PhD research including diaries, interviews, go-alongs and ethnography. The chapter concludes by discussing how the data was analysed by using the general procedures of 'grounded theory' methodology and reflecting on the limitations of the thesis.

Chapter 4, the first of the three empirical chapters, examines the concept of 'choice architecture' which has been popularised by soft or libertarian paternalist thought or 'nudge theory'. It begins by examining how these ideas might be applied in the context of attempts to facilitate shifts towards low carbon mobility. Unlike other dominant individualist models it is argued that it provides a way of explaining how social and physical environments influence individual choice. Despite this the chapter argues the main limitations of this approach are three-fold. First, nudge accounts fail to consider how individual choices are pre-conditioned by social, political and material environments. Second, its emphasis on making subtle changes to existing choice infrastructures runs counter to the general consensus that climate change will demand large-scale transformations across all spheres of society. Third, and relatedly, such transformations will require regulations and restrictions that stand in direct contrast to libertarian paternalists' ethos of personal choice and freedom. The notion of 'habit infrastructures' is introduced as an alternative way of understanding how social and physical environments pre-condition but do not determine action. This metaphor is developed initially through an examination of how cars have come to dominate cities around the world as a result of state promotion and the production of (auto)mobile subjectivities. Building on these insights the chapter then considers how particular policy and planning decisions have contributed to Auckland citizens auto-dependent lifestyles. Following on from this it then briefly considers declining patterns of car use and ownership in London before examining how a city's complex transport infrastructures contribute to the emergence of particular (public)mobile subjectivities. The chapter concludes by arguing the notion of 'habit infrastructures' by providing a better understanding of how the internal and external environments of action can better inform attempts to realise environmental and climate change policy goals than that of 'choice architectures'.

Chapter 5 critiques the notion that individuals are prevented from making more sustainable transport 'choices' by various 'barriers to action'. The chapter begins by elaborating on why weather and seasons will likely remain prominent in attempts to decarbonise transport. As a way of contextualising the discussion it explores various quantitative studies which have attempted to examine the impact and effect of hourly, daily and seasonal variations in weather and automated cycle count data from Auckland and London, reveal about cycling patterns. It is argued while such studies demonstrate important patterns they provide little explanation why these trends exist, how or why they have or might change, and how people anticipate, experience or negotiate such variations. Building on these observations the chapter argues there is a need to move beyond the notion of barriers and correspondingly introduces the concepts of socio-technical systems and practices, following Dewey, situations as possible alternatives. The next two sections draw on empirical material to explore how regular cyclists anticipate, experience and negotiate daily and seasonal variations in weather both at home and on the commute. In doing so Dewey's theory of situations is employed as it is contended it provides the best way of understanding the continuous and contingent context in which these experience unfold and associated habits and meanings emerge. The chapter concludes by reflecting on what this account reveals about the limits of the notion of barriers to behaviour change.

Chapter 6 addresses the way in which dominant behavioural models typically underpinned by dual process theories conceptualise habit and thought as polar opposites. Following Dewey the thesis argues they are better understood as phases within human experience in which habit determines the channels within which thought operates and thinking takes place within the fabric of habits. This argument is developed by exploring how people's commuting habits emerge out of repeated encounters with particular social and physical environments in three ways. First, it begins by demonstrating how the initial period of travelling and commuting in a new city is marked by excitement, uncertainty and experimentation as people gradually learn to adjust to transport infrastructures, systems and customs. Second, the transition from excitement and uncertainty to familiar and certain is characterised as the arrival of the mundane commute. People are shown to respond in a range of different and sometimes interrelated ways including grinning and bearing it, trying to mix up the commute, and learning to value and actively use their travel time. The

development of new habits during the initial phase it is argued correspondingly alter people's sense and experience of these environments and allow them to regularly negotiate and adjust to changes in these contexts often with little or no thought. Third, by exploring cyclist's 'close calls' and family life it is revealed that there is still potential for even the most mundane or settled commutes to be rendered problematic. During these periods it is illustrated that existing habits still qualify and determine the channel within which thought occurs. The chapter concludes by re-emphasising the need to move beyond dual process accounts of habit and thought due to the significant role they play in action. Given the persistent importance he places on the temporality and situationality of experience, habit and thought, the chapter contends Dewey provides a valuable starting point for such a project.

Chapter 7 concludes the thesis by considering the research questions in relation to the conceptual framework and the research findings (Chapters 4-6). The chapter begins by briefly reflecting on the overall aims and focus of the thesis. In doing so it is emphasised that behaviour change for the purposes of sustainability and climate change will entail the widespread modification of existing habits and individual subjectivities. The research questions are then examined by revisiting the arguments made in the main empirical chapters to suggest important considerations for attempts to theorise, understand, and govern the environments and phases of action. In particular, it is reasserted that if behaviour change interventions are to play a meaningful role in facilitating change they need to move beyond existing dominant models of behaviour. Accordingly it considers how Dewey's pragmatist writings provide a situated, relational and more-than-individual account for understanding how action emerges in particular social and physical environments and the strengths and limitations of this approach. Subsequently the research implications arising from the thesis are examined in relation to debates on behaviour change, climate change and mobility. The chapter concludes by considering some of the future areas of research generated from the thesis which might help to reveal both the challenges and possible openings for developing a low carbon economy and society through behaviour change interventions.

Chapter 2.
Re-inhabiting the commute: Rethinking attempts to de-carbonise everyday mobility

2.1 Introduction: Theorising, researching and governing 'behaviour change'

Chapter 1 argued that behaviour change, transport and cities have come to be understood as central to efforts to redress the challenges of sustainability and climate change. Commuting was observed to be one site where states have attempted to intervene, influence and change the actions of citizens to reduce transport-related fossil fuel consumption and carbon emissions. This chapter, focusing primarily on everyday mobility, examines four different approaches for understanding action which have or could inform such efforts paying particular attention to how they theorise, research, and attempt or propose to, govern citizen's actions. In this context, the term 'action' rather than 'behaviour' is used in this chapter and throughout the thesis as the latter has become mainly associated with individualistic attempts to identify the psychological and economic determinants of human conduct (cf. Jackson, 2005; Jones et al., 2013b; Shove, 2010). There are two notable exceptions. First, reference is made to behaviour when individualistic approaches to action are discussed in Section 2.3 but also elsewhere in the thesis. Second, the phrase 'behaviour change', reflecting its common usage, is used throughout the thesis to represent attempts to modify or change the actions of individuals. Meanwhile, the 'state' is understood as a 'mishmash of different peopled institutions with competing priorities' which through 'an amalgam of different instantiated practices' gives 'the impression of coherence and durability' (Jones et al., 2013a, p. 33).

The four approaches to action which will be examined in sequential order are: 1) individualist; 2) socio-technical; 3) practice-based; and 4) Deweyan pragmatism. Each section introduces the theoretical assumptions underpinning the approach paying particular attention to the ways in which they understand the environments and phases of action. In exploring the environments of action a broad distinction is made between the *external* and *internal* contexts in which action occurs. The

external environment can be understood as the social and physical milieus or contexts which, each of the different approaches, consider to varying degrees important in shaping and influencing an individual's actions, capacities and subjectivity (cf. Shilling, 2008). The *internal* environment, in contrast, might variously refer to a combination of bodily needs (instincts or impulses), sensory perceptions, emotions, values, desires, experiences, embodied capacities and skills, and conscious thought (cf. Hildebrand, 2008; Shilling, 2008). Importantly, each approach also differs in relation to the extent that they consider action to be the dynamic and continuous outcome of individuals interacting with their social and physical environments. There are some similarities, however, between socio-technical, practice-based and Deweyan pragmatist accounts as they all recognise how individual action is always embedded in and *conditioned* by external contexts.

A distinction is also made between different phases or modes of action. Recognising that each of these approaches understand action in rather different ways it is difficult to provide a comprehensive overview of each of these phases. There are some shared commonalities (cf. Aarts et al., 1998; Chaiken & Trope, 1999; Neal et al., 2006; Schwanen et al., 2012; Shilling, 2008; Shove, 2012; Thaler & Sunstein, 2008; Verplanken & Wood, 2006). The individualist, practice and Deweyan approaches, albeit in very different ways, usually draws a distinction between: 1) automatic, routine or habitual action; and 2) rational, deliberative or reflective action. The first mode, typically associated with habits, is generally understood as relatively stable or *routinized* dispositions or ways of acting which have arisen out of the repetition of past actions within particular contexts. They are acts characterised by a high degree of automation and routintisation both of which is are essential for 'humans to operate effectively' (Shilling, 2008, p. 12). By storing 'the fruits of past experience' habits 'economise and simplify our actions' which allows us to negotiate our social and physical surroundings without having to plan, consciously control and monitor every move we make (James, 1890, p. 114; Scheffler, 1974, p. 123). In contrast, the rational, reflective or deliberative mode is marked by consciousness, awareness, planning, problem-solving and thought. There is some divergence on how regularly rational or conscious action occurs and the events or environments which give rise to it. The extent to which one phase or the other dominates action also varies across, and sometimes within, each approach but there does appear to be a growing

consensus that automatic, routine or habitual action tends to prevail (cf. Shilling, 2008; Shove, 2012; Thaler & Sunstein, 2008; Verplanken & Wood, 2006).

The remainder of the chapter is divided into five sections. First, Section 2.2 contextualises the chapter in relation to contemporary understandings of everyday movement. Second, Section 2.3 focuses on soft or libertarian paternalism or nudge theory as a way of illustrating how individualistic accounts understand the environments and phases of action and their potential application to behaviour change. Third, Section 2.4 introduces theories of *socio-technical systems* and *practice* and suggests despite both providing more dynamic and relational accounts of how social and physical contexts variously enable and constrain action, they still have a number of limitations. Fourth, Section 2.5 examines John Dewey's pragmatism. This section finishes by outlining the Deweyan-inspired conceptual framework which is developed in the thesis to understand action. The chapter concludes in Section 2.6 reasserting the importance of the need to rethink existing dominant approaches to behaviour change if shifts to less resource and carbon intensive modes of everyday mobility and living are to be realised.

2.2 Understanding everyday movement: From transport to mobilities studies

The field of transport studies, as Section 1.2 noted, has historically dominated the ways in which everyday movement has been theorised and understood in both research and policy (Banister, 2008; Law, 1999; Shaw & Sidaway, 2011). Transport geography, in this context, has examined the spatial aspects of transport in two main ways. First, how the form, layout and extent transport systems are determined by a variety of factors including 'topography (mountains, rivers, etc.), economic conditions, technological capability, socio-political situations and the spatial distribution of the places they link together', and second, the impact of transport on social and economic activity (Black, 2003; Keeling, 2007; Shaw et al., 2008, pp. 4-5). Traditionally transport geography (although see Schwanen, 2015; Shaw & Hesse, 2010; Shaw & Sidaway, 2011) has been founded upon many features common across transport studies (see Banister, 2008; Schwanen & Lucas, 2011) including empiricist

or positive assumptions, methods of data collection and modelling (Law, 1999; Shaw & Hesse, 2010).

Despite multiple theoretical frameworks being used in transport studies to frame empirical research and model development, these are typically derived from analogous disciplines of psychology and economics (for overviews see Schwanen et al., 2011; Schwanen & Lucas, 2011). Notable frameworks include the random-utility theory (RUT) (Domenich & McFadden, 1975; McFadden, 1986, 2001), the Theory of Reasoned Action (TRA) (Ajzen & Fishein, 1980; Fishbein, 1973), Theory of Planned Behaviour (TPB) (Ajzen, 1991) and Schwartz's (1977) Norm Activation Model. Transport as a consequence tends be modelled as if mobility practices were derived from a set of largely given demands such as work, shopping, leisure, or housing and 'not for the pleasure of the movement itself' (Law, 1999, p. 580; Sheller & Urry, 2006). Similarly, trips are 'imagined as being made by independent individuals, each contained in a body that is a distinct, separate and equivalent unit' which can either then be modelled as 'discrete entities with independent trajectories' (Law, 1999, p. 581), or at the aggregate level, in relation to 'place-inherent push and pull factors' (Manderscheid, 2014, p. 189).

Mobilities studies, in contrast, are predicated on a 'mobilities turn' or the 'new mobilities paradigm' which seeks to rethink existing approaches to understanding the movement of people, ideas and things (Adey, 2010; Cresswell, 2006; Hannam et al., 2006; Sheller & Urry, 2006; Urry, 2007). This paradigm seeks to problematize 'both 'sedentarist' approaches in the social science[s] that treat place, stability and dwelling as a natural steady-state, and 'deterritorialized' approaches that posit a new 'grand narrative' of mobility, fluidity or liquidity as a pervasive condition of postmodernity or globalization' (Hannam et al., 2006, p. 5; Sheller & Urry, 2006). For Cresswell (2006; 2010, p. 18) mobility 'exists in the same relation to movement as place does to location'. In his view mobility 'involves a fragile entanglement of physical movement, representations, and practices' (Cresswell, 2010, p. 18). Physical movement is 'brute fact – something that is potentially observable, a thing in the world, an empirical reality' which is 'measured and analysed' by modellers and transport planners (Cresswell, 2006, p. 3). Representations are the 'ideas about mobility' which are captured and conveyed in diverse forms from 'film to law,

medicine to photography, literature to philosophy' and 'make sense of it through the production of meaning' (Cresswell, 2006, p. 3). Importantly, mobility is also 'practiced, it is experienced, it is embodied', it is 'a way of being in the world' (Cresswell, 2006, p. 3). These entanglements Cresswell (2010, p. 18) argues have 'broadly traceable histories and geographies' and as a result at any one time there are 'pervading constellations of mobility – particular patterns of movement, representations of movement, and ways of practising movement that make sense together'.

Although the term 'new mobilities paradigm' is potentially problematic, there is something 'new' about how such scholars compared to earlier accounts of, for instance, 'movement, migration and transport', approach mobilities (see Cresswell, 2010, p. 18; 2011). First, whereas migration and transport studies tend to focus on particular forms of moving, a 'mobilities approach considers all forms of movement from small-scale bodily movements, such as dance or walking, through infrastructural and transport aided movements to global flows of finance or labour' (Cresswell, 2011, p. 552). Second, 'mobilities research thinks about a variety of things that move including humans, ideas and objects' and 'how these things move in interconnected ways and how one may enable or hinder another' (Cresswell, 2011, p. 552). Mobile technologies, for example, inform in different ways 'corporal acts of moving and staying put' (Berry & Hamilton, 2009; Cresswell, 2011, p. 552; Larsen et al., 2006).

Third, mobility is understood 'in relation to forms of place, stopping, stillness and relative immobility that are enabled by or enable mobilities' (Adey, 2006; Cresswell, 2011, p. 552; Hannam et al., 2006). Fourth, there is a general sentiment that an attentiveness to empirical mobilities demands both mobile theorization and mobile methodologies to ensure accounts do not privilege 'notions of boundedness and the sedentary' (Büscher & Urry, 2009; Cresswell, 2006, 2011, p. 552; Urry, 2007). Fifth, there has been an 'increased focus on the differentiated politics of mobility whether at the scale of individuals lining up at an airport, men and women travelling to work on a daily basis or the global flows of the kinetic elite or refugees (Cresswell, 2010; 2011, p. 552; Hanson, 2010; Silvey, 2005).

In summary, understandings of everyday movement have and continue to be influenced by the empiricist and positivist assumptions of transport studies, and indirectly, through appropriation of cognizant theoretical frameworks, economics and psychology (see Section 2.3). Mobilities scholars have subsequently sought to address the limitations of these dominant individualistic understandings by deploying new conceptual (see Sections 2.4 and 4.3) and empirical approaches (see Chapter 3) to understanding movement. In the process they have demonstrated how 'as subjects and objects move across spatial, social and cultural settings, they are not doing so independently of the political and economic structures that shape subjectivity, locality and mobility, but are actually embodying, recoding and updating larger material and symbolic regimes' (see Section 4.3; D'Andrea et al., 2011, p. 158). Despite the potential contributions such insights could make to the behaviour change agendas mobilities scholars have not had the same sustained engagement that transport scholars have had with policy debates pertaining to sustainability and climate change (Shaw & Hesse, 2010). This thesis attempts to in part address this deficiency by reflecting on the possible implications of understanding mobility as always embedded in particular social, political and material contexts might have for understanding behaviour change. Alongside this it seeks to again illustrate how mobilities-inspired research can assist transport studies, but more specifically transport geography, to move beyond individualistic accounts of 'travel behaviour' which still remain prominent within the discipline (see Shaw & Hesse, 2010; Shaw & Sidaway, 2011). The remainder of this chapter now focuses on four different approaches to action which have to more or a lesser extent informed transport and mobilities studies, as well as, attempts to understand and intervene, influence and change the the actions of citizens in different spheres of life including everyday mobility.

2.3 Attitudes, (irrational) behaviour and choice (architectures)

The previous section observed how the field of transport studies has typically been informed by individualistic approaches derived from psychology and economics. Many of these frameworks including rational choice theories, the Theory of Reasoned Action (TRA) (Ajzen & Fishein, 1980; Fishbein, 1973) and the Theory of

Planned Behaviour (TPB) (Ajzen, 1991) have been equally prominent in wider environmental debates. It is beyond the scope of this chapter to provide a full overview of these frameworks and their potential application to understanding transport (see Schwanen et al., 2011; Schwanen & Lucas, 2011) and behaviour change (see Burgess et al., 2003; Jackson, 2005). Some of the common features of these approaches, however, are elaborated in Sections 2.3.1-2.3.3 and elsewhere in the thesis (Chapters 5 and 6). Reflecting its growing prominence within policy-making the remainder of this subsection focuses on soft or libertarian paternalism or nudge theory[2] in order to illustrate how these individualistic accounts understand the environments and phases of action and their potential application to behaviour change.

2.3.1 Libertarian paternalism: From *homo economicus* to Homer Simpson

Since 2004, libertarian paternalism, or nudge theory as it is commonly known, has played a prominent role reshaping the ways in which states in many countries around the world have sought to design and implement public policies (Ly & Soman, 2013; Whitehead et al., 2014) including in a transport context (DfT, 2011; Jones et al., 2011b, 2013b). This set of governance principles and practises is guided by various quasi-scientific and scientific insights about human decision making and action derived from various disciplines including behavioural economics, behavioural psychology and neuroscience (see Table 2.1). The libertarian aspect of this approach reflects a belief that generally 'people should be free to do what they like-and to opt out of undesirable arrangements if they want to do' (Thaler & Sunstein, 2008, p. 5). The paternalistic facet 'lies in the claim that it is legitimate for choice architects to try to influence people's behaviour in order to make their lives longer, healthier, and better' (Thaler & Sunstein, 2008, p. 5).

[2] The terms libertarian paternalism and nudge or nudge theory are used interchangeably throughout the thesis.

Table 2.1. Key intellectual influences of libertarian paternalism. Source: Jones et al. (2011a).

Behavioural economics	Preference theory
Behavioural psychology	Psychographics
Cognitive design	Social cognition
Engineering psychology	Social influence theory
Ethology	Social marketing
Game theory	Theories of affect
Intuitive judgement theory	Time preference theories
Material psychology	User centred design
Neuroeconomics	Visual perception theory
Neuropsychology	

There are three central tenets upon which libertarian paternalism is founded. First, the 'humans' who live in the real world are distinctly different from the utility maximising *homo economicus* of mainstream economic theory. Humans frequently employ various *biases* such as heuristics, models, inclinations, gut feelings and mental shortcuts when making choices between options (Ariely, 2008; Camerer et al., 2003; Gilovich et al., 2002; Simon, 1955; Thaler & Sunstein, 2008). Unlike *homo economicus* humans experience 'bounded rationality' whereby one's ability to make rational decisions is constrained or restricted by the amount of time and energy available and a lack of sufficient access to suitable information (Simon, 1955, 1982). At other times, and despite the best of intentions, people's decisions are unexpectedly shaped by impulse, arousal or temptation (Thaler & Sunstein, 2008). These claims, and the experimental and 'real world' studies of human behaviour which they are underpinned by, initially emerged out of cognitive and social psychology during the 1970s and 1980s (Kahneman et al., 1982; Wason & Evans, 1974).

Table 2.2. The two cognitive systems. Source: Thaler and Sunstein (2008).

Automatic system (System 1)	**Reflective system (System 2)**
Uncontrolled	Controlled
Effortless	Effortful
Associative	Deductive
Fast	Slow
Unconscious	Self-aware
Skilled	Rule-following

Commonly referred to as *dual-process* or *dual-system theories* (for overviews see Evans, 2008; Kahneman, 2003, 2011; Weber & Johnson, 2009), these accounts distinguish between habitual or automatic and rational or reflective cognitive systems and/or modes of behaviour (see Table 2.2). Thaler and Sunstein (2008) emphasise the differences between these two systems by contrasting the dispositions of two fictional characters. The rational and objective Mr Spock from the science fiction franchise *Star Trek* is the embodiment of the reflective system and by association *homo economicus*. Spock's planned and objective approach is marked by slow and deductive thought unaffected by impulses, arousal and emotion. In contrast, the automatic system is fast, uncontrolled, associative, effortless and unconscious. This system is personified by the lazy, impulsive, and thoughtless Homer Simpson, from the television series *The Simpsons*, who 'seems to have forgotten where he put his [r]eflective system' (Thaler & Sunstein, 2008, p. 22). Thus the automatic system 'is rapid and is or feels instinctive' and 'does not involve what we usually associate with the word *thinking*' (Thaler & Sunstein, 2008, p. 19). The heuristics and biases which humans are said to rely on in everyday life are considered to arise out of the interplay between these two systems. More importantly, it is the automatic system which is said to dominate most thought and action (Ariely, 2008; Camerer et al., 2003; Chaiken & Trope, 1999; Gilovich et al., 2002; Thaler & Sunstein, 2008).

Second, it is assumed that the dominance of the automatic system and the reliance on heuristics and biases result in people commonly making 'irrational' or misinformed

choices which can have negative and costly implications for their personal health, financial security and overall happiness (Ariely, 2008; Camerer et al., 2003; Thaler & Sunstein, 2008). It is possible to train the automatic system through 'repetition' but this requires a 'lot time and effort' (Thaler & Sunstein, 2008, p. 21). For example, this system starts out with no idea of how to ride a bicycle or drive a car. After 'countless hours of practice' an 'accomplished' cyclists or driver can 'avoid reflection' and simply relying on their automatic system 'just do it' (Thaler & Sunstein, 2008, p. 21). The problem is that most of the time the 'untrained' automatic system dominates thought and action ensuring that the forces of 'inertia, procrastination, [mindlessness, temptation, arousal] and imitation drive our behavio[u]r' (Ariely, 2008; Gilovich et al., 2002; Thaler & Sunstein, 2008, p. 238). This is because the automatic system is 'associated with the oldest parts of the brain [which] we share with lizards' (Thaler & Sunstein, 2008, p. 20). As a consequence libertarian paternalists, and many psychologists and neuroscientists (see Ledoux, 1998; Lieberman et al., 2002), suggest behaviour is largely pre-determined by our evolutionary past as our 'ancient brain' has 'not evolved much in thousands of years' and as a consequence 'remains much like that of our early ancestors … concerned [mainly] with exploitable resources and immediate groups, risks and needs' (Gifford et al., 2011, p. 812). Thus our ancient brain contributes to 'individuals mak[ing] pretty bad decisions [that] they would not have made if they had paid full attention…, unlimited cognitive abilities, and complete self-control' (Ariely, 2008; Thaler & Sunstein, 2008, p. 21). Typically the costs of the bad decisions individuals make such as eating unhealthy foods, selecting the wrong health or retirement plan or failing to reduce their speed for a dangerous corner (see Section 4.2) are collectively shared by other members of society (e.g., cost of health care; car insurance premiums) (Thaler & Sunstein, 2008).

Third, elements of physical and procedural environment including technologies, interfaces, architecture and infrastructure, shape the possible ways in which users interact with people, objects and their surroundings (Norman, 1988). Importantly, these rather ubiquitous elements provide the 'choice architecture' or contexts in which humans live and operate. The design and configuration of 'choice architectures' can serve to perpetuate existing biases of the automatic system and as a result actively contribute to the propensity for humans to routinely make irrational

decisions (Norman, 1988; Thaler & Sunstein, 2008). Additionally, 'social norms' or 'influences' are an important feature of the context in which individuals make decisions and judgements and can influence what they do and think (Cialdini, 2009 [2001]). This is because the actions and thoughts of other people 'conveys information' to an individual about what 'might be [their] best' course of action or way of thinking (Thaler & Sunstein, 2008, p. 54). Similarly, 'peer pressure' encourages individuals concerned about how others perceive them to 'go along with the crowd to avoid their wrath or curry their favour' (Thaler & Sunstein, 2008, p. 54). Libertarian paternalists contend that by harnessing the 'power' of these physical and social environments or 'choice architectures' it is possible to 'nudge' individuals towards better decisions (Thaler & Sunstein, 2008).

Libertarian paternalism in this way moves beyond social psychological accounts which interpret a wide variety of external 'factors' as motivators and barriers to action including, but not limited to:

> government regulations; other legal and institutional factors; … the physical difficulty of specific action; capability and constraints provided by technology and the built environment (e.g., building design, availability of bicycle paths, solar energy technology); … and various features of the broad social, economic, and political context (e.g., the price of oil, the sensitivity of government to public and interest group pressures …) (Stern, 2000, p. 415).

These diverse external factors are simply understood as 'weak', 'neutral' or 'strong' motivators or barriers to action (e.g., Corraliza & Berenguer, 2000; Guagnano et al., 1995; Lüdemann, 1998; Steg & Vlek, 2009, p. 312) and no attempt is made to explain how they drive or prevent certain behaviours (see also Section 4.2; Shove, 2010). For example, the Attitude-Behaviour-Context/Constraint model (Stern, 2000), represented in Figure 2.1, holds the relationship between attitudes (A) and behaviour (B) is strongest in situations where contextual factors (C) are weak or neutral. Conversely, when contextual factors (e.g., the presence or absence of cycle infrastructure) are either significantly negative or positive they are deemed capable of preventing individual from, or almost compelling them to, perform a specific behaviour (i.e., cycle). This is in direct contrast to libertarian paternalists who stress the importance of understanding how these external environments shape the actions and decisions of individuals.

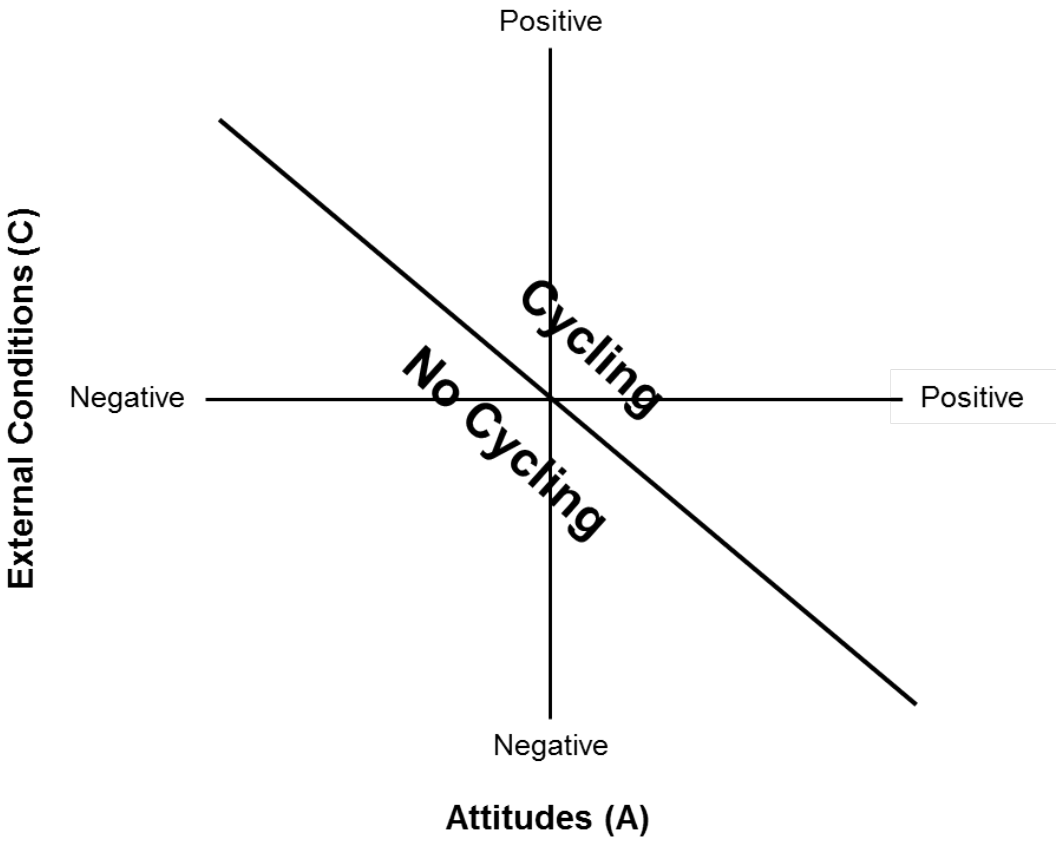

Figure 2.1. The Attitude-Behaviour-Context Model applied to cycling. Modified from Guagnano et al. (1995).

Nudging involves subtly re-configuring the physical or social contexts in which decision making occurs in ways that encourage people to make choices in their own best interests without forbidding any options (Thaler & Sunstein, 2008). These attempts are legitimised by the observation that there is no such thing as 'neutral' design as any information, policy or product inevitability entails the framing a user's choices (Thaler & Sunstein, 2008, p. 3). Libertarian paternalists are thus attentive to how a user's preferences are mediated by how their automatic system interacts with choice architectures, which differs significantly from more 'traditional' approaches. A number of social psychology theories, for instance, focus on 'breaking' or 'defrosting' habits by disrupting the environment which cues an individual's automatic response (see Section 6.2.1). Nudge, in contrast, attempts to work *with* rather than against people's automatic system and their *predictably irrational* biases (Ariely, 2008; Thaler & Sunstein, 2008). For example, a 'choice architect' such as the manager a school cafeteria is in a position where they can potentially encourage children to improve their diets by rearranging the layout of cafeteria so that healthy

food is at eye level (Thaler & Sunstein, 2008, p. 3). Such an intervention counts as a nudge as it is 'easy and cheap to avoid' and as it does ban unhealthy food, it is in no way mandatory (Thaler & Sunstein, 2008, p. 6). The implications and limitations of nudging and choice architecture are briefly elaborated below before being further considered in Section 4.2.

2.3.2 Nudge theory, MINDSPACE and the behaviour change agenda(s)

A key attraction of libertarian paternalism is that it has allowed policy makers to shift away from narrow accounts of human decision-making based on, for instance, rational choice models (Becker, 1976; Elster, 1986) and the Theories of Reasoned Action (Ajzen & Fishein, 1980) and Planned Behaviour (Ajzen, 1991). These earlier economic and psychological models suggest individuals corresponding with their pre-existing attitudes, beliefs and values make rational and logical 'choices'. Accordingly, information 'presented in attractive' and 'accessible ways' and appropriate financial incentives are all it that are required to encourage individuals to change their minds and make 'environmentally friendly' choices (Burgess et al., 1998, p. 1446; Dolan et al., 2010). Greater levels of awareness and concern have not resulted in the majority of individuals adopting environmentally sustainable lifestyles (Spaargaren, 2011). There is an observed 'value-action' or 'attitude-behaviour' gap where people holding particular attitudes or values fail to act correspondingly (Blake, 1999; Kollmuss & Agyeman, 2002). More recent, behavioural accounts have attributed this gap to the dominant role habits or the automatic system and/or the social and physical environment ('choice architecture') play in shaping or influencing individual action and thought (e.g., Blake, 1999; Kollmuss & Agyeman, 2002; Lorenzoni et al., 2007; Norman, 1988; Stern, 2000; Thaler & Sunstein, 2008; Verplanken & Wood, 2006).

Building on 'major advances' (p. 7) in behavioural science understandings of 'the factors that shape and affect our behaviour' (Dolan et al., 2010, p. 12), nudge has thus helped facilitate the development of policies[3] which consider 'the role of emotion, social [, procedural and physical] context[s], automatic response, mental

[3] Here, it is important to note that there are now a wide range of nudge-inspired policies emerging and not all of these display the same flaws that the thesis identifies in the broader policy project (for further details see Whitehead et al., 2014).

shortcuts, and intuition within human behaviour' (Whitehead, 2014, p. 11, see for example: DfT, 2011, 2013; MED, 2006). An additional attraction according to nudge advocates is that it provides the 'real Third Way' between left and right-wing politics (Thaler & Sunstein, 2003; 2008, p. 252) by preserving 'personal freedom of choice' and 'supporting the establishment of a more caring and supportive system of government' (for critical discussions see Jones et al., 2011b; Jones et al., 2013b; Pykett et al., 2011, p. 301).

In *Nudge*, Thaler and Sunstein (2008, pp. 81-100) outline what they consider to be the six 'basic principles of good (and bad) choice architecture' (p. 83) through the mnemonic 'NUDGES' (i**N**centives, **U**nderstand mappings, **D**efaults, **G**ive feedback, **E**xpect error, **S**tructure complex choices) (p. 100). Most of these principles have subsequently been incorporated into the Institute of Government (Dolan et al., 2010) report *MINDSPACE: Influencing behaviour through public policy*. Notably, this report 'helped to make the case for the establishment' (para. 3) of the UK Cabinet Office's Behavioural Insights Team which continues to use this framework 'to aid the application of behavioural science to the policymaking process' (BIT, 2014, para. 4). Commissioned by the Cabinet Office and developed with academics from the London School of Economics and Imperial College, it sets out a practical checklist of the nine 'most robust (non-coercive) influences on behaviour' (Dolan et al., 2010, p. 8). This checklist, captured in the mnemonic 'MINDSPACE' and presented in Table 2.3, omits what the authors consider to be 'hard' or 'coercive' instruments such as legislation and regulation which despite being 'very effective' at 'compel[ling] us to act in certain ways' are often 'costly and inappropriate in many instances' (Dolan et al., 2010, p. 7). 'Less-coercive' or 'soft' policy instruments such as incentives, information provision and sophisticated communications techniques, meanwhile, are often less expensive and 'sometimes very effective' (Dolan et al., 2010, p. 7). MINDSPACE like nudge, therefore, does not forbid any choices, recognises that the 'choice environment' is ubiquitous, and seeks to work with the automatic system (Dolan et al., 2010, p. 12).

Table 2.3. The nine 'most robust (non-coercive) influences on our behaviour' captured in the simple mnemonic – MINDSPACE. Source: Dolan (2010, p. 8).

Behavioural influence	**How it influences behaviour**
Messenger	we are heavily influenced by who communicates information
Incentives	our responses to incentives are shaped by predictable mental shortcuts such as strongly avoiding losses
Norms	we are strongly influenced by what others do
Defaults	we 'go with the flow' of pre-set options
Salience	our attention is drawn to what is novel and seems relevant to us
Priming	our acts are often influenced by sub-conscious cues
Affect	our emotional associations can powerfully shape our actions
Commitments	we seek to be consistent with our public promises, and reciprocate acts
Ego	we act in ways that make us feel better about ourselves

By 'condensing' new evidence and insights from the behavioural sciences into a 'manageable' checklist MINDSPACE it is argued can provide policy makers with a 'powerful new set of tools' to help address challenges as diverse as crime, obesity and environmental sustainability (Dolan et al., 2010, p. 7). Drawing on the 4 E's framework, originally developed by Defra (Defra, 2008; Jackson, 2005), they illustrate how in practice MINDSPACE can build on 'existing methods of policy-making' (Dolan et al., 2010, p. 9). The 4Es are 'four actions that should underpin government's attempts to change behaviour: Enable, Encourage, Engage and Exemplify' (Dolan et al., 2010, p. 9). MINDSPACE, as Figure 2.2 highlights, requires 'two supporting actions: Explore, which takes place before policies are implemented, and Evaluate, which judges the success of the policy' (Dolan et al., 2010, p. 9).

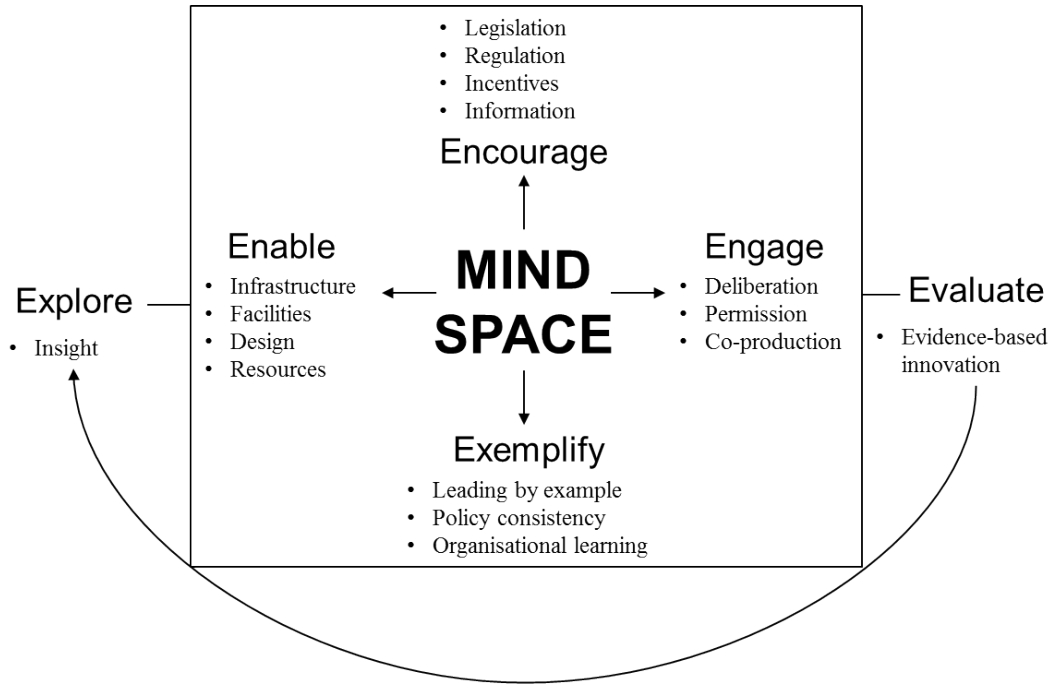

Figure 2.2. The 6E's framework for applying MINDSPACE. Source: Dolan et al. (2010, p. 9).

MINDSPACE in this manner does not radically reformulate existing policy understandings of, and approaches to, governing the environments and phases of action. This is of course not to suggest that like nudge it does not encourage policy makers to rethink their pre-existing assumptions about the rationality of individuals and to recognise the role choice environments play in shaping individual action and thought. Indeed, as the authors observe, the report is marked by a shift away from what are deemed to be largely ineffective and expensive approaches which seek to alter behaviour by simply 'changing minds' (Dolan et al., 2010, p. 15). MINDSPACE, by focusing 'on the more automatic processes of judgement and influence' and 'altering the context within which people act', instead aims to 'chang[e] behaviour without changing minds' (Dolan et al., 2010, p. 14). In doing so MINDSPACE like nudge continues to be underpinned, however, by many of the assumptions of earlier psychological and economic models.

2.3.3 Individualistic understandings of the environments and phases of action

Nudge and MINDSPACE, like many other individualistic approaches, embody at least six interrelated assumptions about researching and governing behaviour change (see also Jackson, 2005; Shove, 2010; Strengers, 2012; Whitford, 2002). First, the

'individual' is assumed to be the most appropriate unit of analysis, policy and intervention. Second, individuals are assumed much like a 'portfolio' (see Hindess, 1988), to 'carry a relatively stable and pre-existing set of beliefs', values, 'desires [and biases] from context to context' (Whitford, 2002, p. 325). Subjectivity is thus understood as something pre-given and insulated from an individual's social and physical surroundings. Third, behaviour is an essentially linear process which is driven or prevented by the elements of an individual's portfolio and other antecedent factors such as habits and the design and configuration of facilitating or choice contexts (Burgess et al., 2003). Habits, when considered in this context, tend to be viewed as simply unreflexive and automatic responses to environmental cues. Fourth, humans are assumed to exist separately from the non-human world of nature and technology (Spaargaren, 2011; Strengers, 2012). Fifth, only humans are understood to possess agency or the ability to act (Spaargaren, 2011; Strengers, 2012), although it could be argued nudge accounts at least recognise some resemblance of non-human agency (for a critical discussion see Pinch, 2010; Selinger & Whyte, 2010). Six, change is considered to be 'orderly, predictable and controllable' process (Strengers, 2012, p. 228) as behaviour can be divided into discrete components each of which is 'amenable to interventions designed to re-engineer choices step by step' (Webb, 2012, p. 113). Moreover, any reductions in resource consumption and carbon emissions associated with behavioural changes are presumed to be long-lasting (Strengers, 2012).

The remainder of this chapter considers three alternative approaches (Sections 2.4-2.5) to understanding action which provide more dynamic, relational and importantly *non-individualistic* accounts of how the social and physical environments of action *condition* but do not *determine* individual action. In doing so, it will be argued that the six assumptions embedded within individualistic approaches severely limit their potential to explain how high carbon and resource intensive patterns of mobility have emerged and how and why they might change.

2.4 Reconfiguring behaviour change: From individuals as (ir)rational decision makers to 'carriers' of practices embedded in socio-technical systems

This section introduces theories of socio-technical systems and practice which have been taken up by scholars interested in recognising the 'crucial role of the mobility of people, goods, information and ideas for society and social life' (Schwanen & Lucas, 2011), as well as, those seeking to either inform or reshape existing academic (e.g., Hargreaves, 2011; Shove, 2010; Watson, 2012) and policy (e.g., Darnton et al., 2011; Jackson, 2005; Southerton et al., 2011; Shove, 2012b) debates associated with environmental and climate change issues. There are at least two important differences between these and the individualistic approaches elaborated upon in Section 2.3. First, nudge and social psychology theories seek to predict which, and in what circumstances, individuals will, for instance, drive a car by identifying the key factors that shape and affect behaviour (Schwanen & Lucas, 2011). In contrast, socio-technical and practice scholars are more sceptical of the possibilities of predicting behaviour and instead would seek to understand the role and dominance of the car in contemporary societies (Schwanen & Lucas, 2011; Shove et al., 2015). Second, the *individual*, the fundamental unit of analysis in nudge and social psychology approaches, is not as central to socio-technical and practice accounts. Rather, as Sections 2.4.1 and 2.4.2 elaborate, they consider either *systems* or *practices* as the central units of analysis. As there are a number of overlaps between the limitations of socio-technical and practice-based approaches these will be considered together in Section 2.4.3.

2.4.1 Socio-technical systems: System dynamics, co-evolution and the system of automobility

S*ocio-technical* accounts seek to examine at a systemic or macro-level how environmentally problematic ways of life emerge, are reproduced and how they change. Drawing on traditions such as innovation studies, science and technology studies (STS), evolutionary economics, history, and complexity theory this literature in different ways seeks to highlight how individual decisions and choices are always embedded in social, technical, political, cultural and economic settings (Bijker et al.,

1987; Fleck, 1993, 2000; Geels, 2005b; Rip & Kemp, 1998). Ideas and concepts from these diverse traditions have been mobilised in different ways by scholars who have sought to analyse the rise of existing unsustainable and high carbon lifestyles and to identify the possibilities for transitions to less resource and carbon intensive societies (Geels, 2005b; Rip & Kemp, 1998; Shove, 2003; Spaargaren and van Vliet, 2000).

Despite these differences, there are at least three broad conceptual overlaps between Frank Geels (2005b, 2012) use of the multi-level perspective (MLP), inspired by evolutionary economics, innovation studies and STS, and John Urry's (2000; 2004; Dennis & Urry, 2009) use of complexity theory, to account for the continuing dominance of the car and to explore the likelihood of transitions to low-carbon or 'post-car' transport systems (see also Shove, 1998; Watson, 2012). First, they both recognise that society and technology are inextricably linked. This is embodied in the term 'socio-technical system' which recognises how 'the social' and 'the technical' are always dynamically 'intertwined', constitutive of 'each other' and co-evolve together (Geels, 2005b, p. viii).

Second, Geels and Urry hold it is not possible to understand car use without reference to the other elements of this socio-technical system which have become 'inter-related in structured and systemic ways' (Watson, 2012, p. 492). This focus enables both scholars, albeit in different ways, to examine the processes which have given rise to the 'dominant structure of personal mobility' (Watson, 2012, p. 492). Geels, for example, charts between 1860 and 1930 the transition from a land-based road transport system dominated by horse-drawn carriages to automobiles in the United States (see Geels, 2005b, pp. 144-192). He argues that this was a result of interactions between the 'heterogeneous' elements of the automobile system, presented in Figure 2.3, and the way in which 'changes in one element triggered changes in another' and over time these 'developments gradually linked up' (p. 146). He also identifies the main social groups (see Figure 2.4) who in the context of existing rules, regulations and policies, markets and user practices and production and industry structures 'maintained (and changed) the elements of the socio-technical system'.

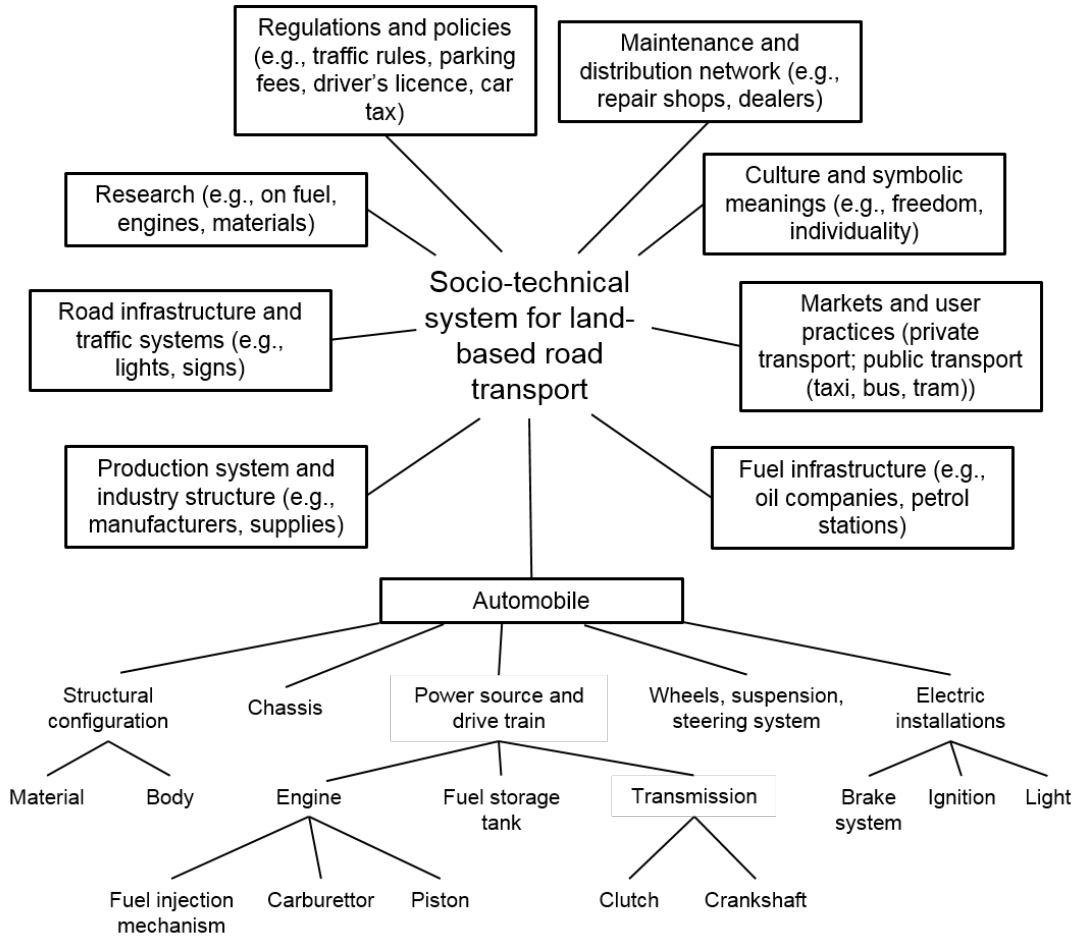

Figure 2.3. Socio-technical system in personal land-based transportation. Modified from Geels (2005b, p. 147).

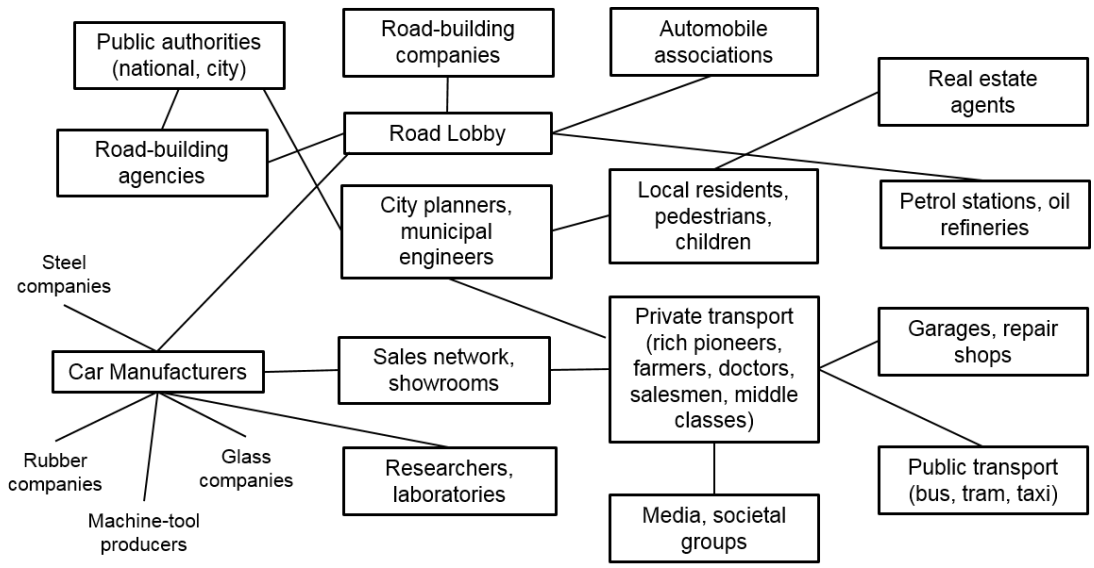

Figure 2.4. Social groups in personal land-based transportation. Modified from Geels (2005b, p. 148).

Correspondingly, Urry (2004, p. 27) draws on these and other elements in conceptualising automobility as 'a self-organising auto-poetic, nonlinear system that spreads world-wide, and includes cars, car-drivers, roads, petroleum supplies and many novel objects, technologies and signs'. More specifically, it is the '*combination*' of six social and technical elements that have been responsible for the expansion and continuing ascendancy of the car and the 'specific character of domination' that it entails (p. 27). Accordingly, automobility is:

- 'the *quintessential manufactured* object produced by the leading industrial sectors and the iconic firms [of the] twentieth-century' (e.g., Ford, GM, Rolls-Royce, Mercedes, Toyota and VW), and 'the industry which has generated key *concepts* … employed in understanding the development of … the trajectory of contemporary capitalism';
- 'the major item of *individual consumption* which provides status to its owner/user through the sign-values with which it is associated with (speed, home, safety, sexual desire, career success, freedom, masculinity)';
- 'a *machinic complex* constituted through the car's technical and social inter-linkages with other industries, including car parts and accessories; petrol refining and distribution; road-building and maintenance; hotels, roadside service areas and motels; car sales and repair workshops; suburban house building; new retailing and leisure complexes; advertising and marketing';
- 'the single most important environmental issue resulting from the exceptional range and scale of resources used in the manufacture of cars, roads and car-only environments, and in coping with the material, air quality, medical, social, ozone, visual, noise, [carbon emissions (CO2)], and other consequences of automobility';
- 'the predominant form of quasi-private *mobility* which subordinates other 'public' mobilities of walking, cycling [and] travelling by rail', and 'reorganises how people negotiate the opportunities for, and constraints upon, work, family life, leisure and pleasure'; and
- 'the dominant *culture* that organises and legitimates socialities across different genders, classes [and] ages', 'sustains major discourses of what constitutes the good life' and 'provides potent literary images and symbols' (Urry, 2000, pp. 57-58).

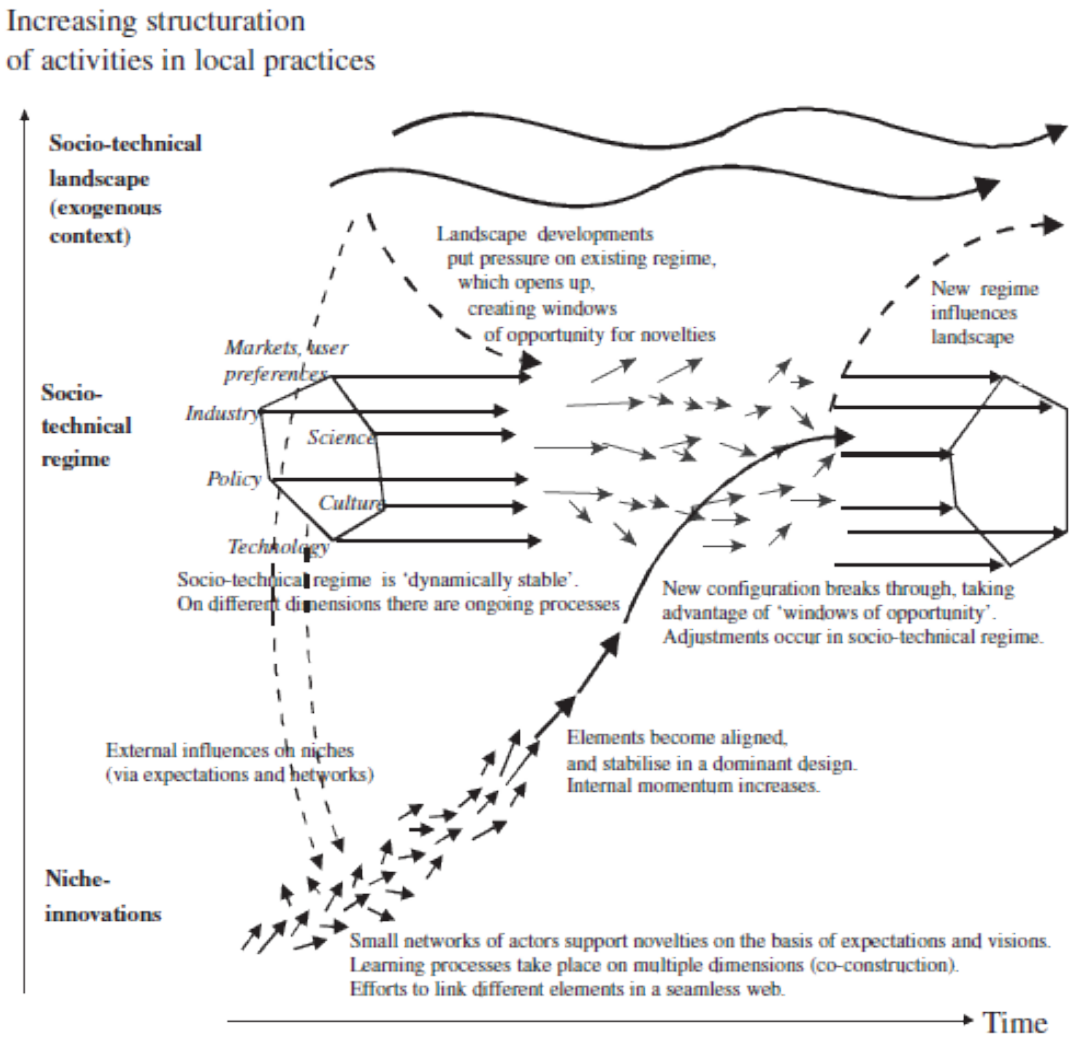

Figure 2.5. Multi-level perspective on transitions. Source: Geels (2012, p. 474).

Third, both scholars recognise that the current system of automobility is characterised by 'stability, lock-in and path dependence, which give rise to incremental change along predictable trajectories' (Geels, 2012, p. 472) and continually reproduce the dominance of the 'petroleum car' (Urry, 2004, p. 27). This stability and path dependence is by no means fixed forever or irreversible, however, and a transition to low-carbon or post-car system is possible but this process will be non-linear. Geels (2012, p. 472), for instance, observes that 'alternatives are being proposed, developed and tried by pioneers, entrepreneurs, social movements' and others outside the existing system. In doing so, he notes that these alternatives 'typically face an uphill struggle' against the existing system, 'because they are more expensive (since they have not yet benefited from economies of scale and learning curves), require changes in user practices, face a mismatch with existing regulations,

or lack an appropriate infrastructure' (Geels, 2012, p. 472). For Geels, the transition to a low carbon transport system, following the basic premise of the MLP (see Figure 2.5), will be the outcome of non-linear processes which result from the 'interplay of multiple developments at three analytical levels: niches (the locus for radical innovations), socio-technical regimes (the locus of established practices and associated rules), and an exogenous socio-technical regime' (Geels, 2012, p. 472). Policy-makers seeking to encourage such a transition should accordingly adopt a two-pronged strategy: a) 'stimulate the emergence and diffusion of niche-innovations'; and b) 'enhance the selection pressure on the existing regime through economic instruments (e.g., carbon taxes, emission trading, road pricing) and regulation (e.g., environmental legislation)' (Geels, 2012, p. 479).

Urry (2004) meanwhile employs the notion of the butterfly effect from chaos theory to suggest that precise source of 'the trigger and the tipping point at which local changes bring the system as a whole into disequilibrium cannot be predicted *a priori*' (Schwanen & Lucas, 2011, p. 23). Nonetheless, he identifies a number of 'technical-economic, policy and social transformations that in their dynamic interdependence might tip mobility into a new [post-car] system' (Urry, 2004, p. 33; for a more detailed discussion see Dennis and Urry, 2009): 'developments in fuel systems and new materials for building car bodies, the integration of information and communication technologies into cars, the growing importance of ITCs more generally, the increasing de-privatisation of cars (e.g., car-sharing), and changes in the discourses about climate change and transport policy' (Schwanen & Lucas, 2011, p. 23). Moreover, he contends that whatever form of post-car system emerges it will need to provide at least the same level of flexibility as the petroleum car as 'the pattern of 19th century 'public mobility', of the dominance of buses, trains, coaches and ships, will not be reproduced' (Urry, 2004, p. 36). This is because 'the car system has co-produced forms of mobility, family life, community, work and leisure that highly individualised, fragmented, paced and stretched across geographical space that cannot easily, if at all, be undone' (Schwanen & Lucas, 2011, p. 24).

Overall, socio-technical accounts highlight the importance recognising the ways in which individual decisions and choices are always embedded in and conditioned by dynamic and co-evolving socio-technical systems. Such accounts thus refuse to

'distinguish prematurely between technical, social, economic and political aspects' of resource consumption and use (Guy, 2006, p. 650) or consider certain standards or expectations of, for instance, comfort, cleanliness or convenience as pre-existing or given (Shove, 2003; see also Sections 4.3 and 5.3.1). A number of these insights and concepts as Section 2.4.2 below highlights have been employed as part of attempts to explain how a range of resource intensive practices emerge, persist, fade and disappear.

2.4.2 Theories of practice: The elements and performances of (un)sustainable and carbon (un)intensive lifestyles

'Practice theories' or 'theories of social practice' have been elaborated by a diverse range of thinkers including Pierre Bourdieu (1977, 1984), Anthony Giddens (1979, 1984), Bruno Latour (1993), Harold Garfinkel (1967), Charles Taylor (1971), Michel Foucault (1988; 2002 [1970]), Ludwig Wittgenstein (1953) and Martin Heidegger (1962) among others (cf. Schatzki, 1996, 2001; Reckwitz, 2002). These accounts are far from unified but all consider *practices* to be the primary unit of analysis (Schatzki, 2001; Reckwitz, 2002). In doing so they attempt to move beyond micro or macro-scale explanations which either attribute action to, and understand social order, stability and change as the outcome of, self-contained individuals and the sum of their actions (Section 2.3) or social/socio-technical systems or structures which to a large extent determine the actions of individuals (Section 2.4.1). Instead, 'practice-based approaches can be regarded as 'meso' level analytical constructs' (McMeekin & Southerton, 2012, p. 350) which hold 'individual actions are constituted by practices' (the micro-scale) and social order, stability, and change 'come into being through practices' (the macro-scale) (Røpke, 2009, p. 2491). Social life correspondingly is considered to consist of a wide range of practices including cooking, eating, working and educational (Schatzki, 2002) or, in the current context, walking, cycling, driving or public transport practices (Watson, 2012). Theodore Schatzki (1996, p. 133, 2002) and Andreas Reckwitz (2002) have sought to generate 'deeper understandings of both the nature of practice and key themes that link practice theories'. They conceptualise practices in similar yet distinct ways. These similarities and differences are now briefly considered as their formulations have

become central to the ways in which theories of practice have been deployed in debates around sustainability and climate change.

Towards a 'general' theory of practice

A practice for Schatzki is a 'temporally unfolding and spatially dispersed nexus of doings and sayings' (1996, p. 89) or a 'bundle' or 'organised constellation of activities' (2002, p. 71). As '*organized* nexuses' practices 'hang together' or are 'linked' (p. 77, original emphasis) by four elements (see Schatzki, 2002, pp. 77-88): 1) practical understandings or know-how; 2) rules; 3) a teleoaffective structure (a compound of teleological and affective); and 4) general understandings. Similarly, Reckwitz (2002, p. 249) defines a 'practice' (*Praktik*) as a 'routinized type of behaviour which consists of several elements, interconnected to one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge'. A practice, such as 'a way of cooking, of consuming [or] of working', he suggests, forms 'a 'block' whose existence necessarily depends on the existence and specific interconnectedness of these elements, and which cannot be reduced to any one of these single elements' (Reckwitz, 2002, pp. 249-250). Simultaneously, a practice 'represents a pattern which can be filled out by a multitude of single and often unique actions reproducing the practice' (Reckwitz, 2002, p. 250). In this way Schatzki and Reckwitz both draw a distinction between a practice as a 'block' or 'pattern' (i.e., nexus or array) and 'behaviour' or 'action' (i.e., a doing or saying).

The 'single individual', Reckwitz suggests, 'as a bodily and mental agent', 'acts as the 'carrier' (*Träger*) of a practice – and, in fact, of many different practices which need to be coordinated with one another. Thus, she or he is not only a carrier of patterns of bodily behaviour, but also of certain routinized ways of understanding, knowing how and desiring' (2002, p. 250). Significantly, these 'conventionalized 'mental' activities of understanding, knowing how and desiring are necessary elements and qualities of a practice in which the single individual participates, not qualities of the individual' (2002, p. 250). As a result, the practice is 'not only understandable to the agent or the agents who carry it out, it is likewise understandable to potential observers (at least within the same culture)' (2002, p.

250). Practices are 'social' for Reckwitz, therefore, because as 'a 'type' of behaving and understanding' a practice 'appears at different locales and at different points of time and is carried out by different body/minds' (2002, p. 250). Schatzki (1996) also holds that practices are 'inherently social because participating in one entails entering a complex state of coexistence with other [people]' (p. 169) including those 'within the same or different settings' (p. 187) and 'past and future participants as well' (p. 192). Taking these observations even further he asserts 'practices are the locus of sociality in human life' as 'individuals and relations among individuals … exist only within practices' and 'social formations' such as 'families, artistic movements, governments, and economies' are 'built out of the forms of coexistence opened in practices' (1996, p. 172).

Schatzki acknowledges 'human coexistence is not simply a matter of people carrying on organized activities, but also one of their acting in a world of inter-related artifacts, organisms, things, and people through which their fates as humans are coupled together' (2002, p. 117). Equally though, he draws a firm distinction between 'human practices' (2002, p. 118) and 'non-human agency' which is a 'distinct facet' of social orders that are established by, rather than a component of, practices (p. 122). Thus he makes explicit 'that human activity takes the lead in the mesh of practices and orders where human coexistence takes place' (2002, p. 119). In contrast, 'objects are necessary *components of* many practices [and] just as indispensable as bodily and mental activities' for Reckwitz (2002, p. 250, emphasis added). He stresses that the 'stable relation between agents (body/minds) and things within certain practices reproduces the social, as does the 'mutually' stable relation between several agents in other practices' (2002, p. 250). Additionally, 'one can assume that most social practices consist of routinized relations between several agents (body/minds) and objects'. Reckwitz continues, that as 'the social is also to be located in practices in which single agents deal with objects … and in this sense also the objects – television sets, houses and brownies – are the place of the social insofar as they are necessary components of social practices' (2002, p. 250).

(Un)sustainable lifestyles, climate change and practice

The concepts and propositions developed by Schatzki (1996, 2002) and Reckwitz (2002), and earlier theorists, in particular, Bourdieu (1977, 1984) and Giddens (1979,

1984), have been taken up by a range of scholars interested in their potential to open up new lines of enquiry and insights into existing unsustainable lifestyles and patterns of consumption (for overviews see Warde, 2005; Røpke, 2009; Spaargaren, 2011; Shove et al., 2012). Following Schatzki and Reckwitz, much of this work makes distinctions between 'practice-as-entity' (e.g., block, nexus, array) and 'practice-as-performance' (e.g., action, doing or saying) and regards individuals as 'carriers' or 'hosts' of practices (Røpke, 2009; Shove et al., 2012). Subsequently, these concepts have been employed to describe and analyse the processes through which more or less resource intensive practices, as entities and performances, emerge, persist, fade and disappear. To illustrate such an approach, the remainder of this section focuses primarily on how Elizabeth Shove and colleagues (Shove & Pantzar, 2005; Shove et al., 2012; Watson, 2012) have operationalised these concepts in their 'social practice theory'.

Shove et al. (2012, p. 7) suggest that as an entity a practice 'exists as a recognizable conjunction of elements' which 'can be spoken about and more importantly drawn upon as a set of resources' during the doing of a practice. Using the elements identified by Reckwitz as a starting point, they develop 'an even simpler scheme based on just three elements' (Shove et al., 2012, p. 23). First, materials encompass 'objects, infrastructures, tools, hardware and the body itself' (p. 23). Second, competences are considered the 'multiple forms of understanding and practical knowledgeability' including knowing 'in the sense of being able to evaluate a performance' and 'having the skills required to perform' a practice (p. 23). Third, meanings represent both 'mental activities, emotion and motivational knowledge' and the 'social and symbolic significance of participation at any one moment' (p. 23). A practice is thus the 'interdependent relations between materials, competences and meanings' (p. 24). But it is 'only through successive moments of performance' by the carriers of these practices 'that the interdependencies between elements which constitute the practice-as-entity are sustained over time' (p. 7).

Cycling and driving, for example, involve specific 'technologies and material traces' (e.g., cars, bicycles, accessories, roads, signs and repair shops), 'competences and modes of bodily comportment, and distinctive ways of engaging with the world being moved through' and associated 'social meanings, norms and rules' (Watson,

2012, p. 489; see also Sections 4.3.2 and Section 5.3.2). The practices of cycling and driving exist as 'an entity', however, 'only in and through its performance by practictioners', in this instance, 'people riding a bicycle' or 'driving a car' (Watson, 2012, pp. 489-490). Practices by 'being constituted through performances' are 'ultimately rooted in embodied actions, habits and routines of daily experience', including those 'involved in accomplishing personal mobility' (Cresswell, 2010; Watson, 2012, p. 490). Correspondingly, the rest of this subsection considers three key mechanisms of change which Shove et al. (2012) identify by conceptualising practice in this manner.

First, the elements constituting a practice can change. Practices exist only when elements are integrated, which at a basic level means there are at least two related possibilities (see Figure 2.6). The relevant elements exist but have not been linked (proto-practices) or 'practices disintegrate when links are no longer sustained' (ex-practices) (Shove et al., 2012, p. 24). For example, 'the origin, rules of the road and related forms of *competence* crossed over from the world of the horse to that of the car, as did many *material* aspects of design' (p. 26). The first car bodies were:

> constructed by carriage builders accustomed to painstaking and customized forms of craft production. The structures they were used to making did not suit the new demands of a short wheelbase, and their working methods failed to deliver the forms of standardization required. Many adaptations were needed but many traditional features carried across and informed both the style and the format of powered vehicles (Shove et al., 2012, p. 26).

Many of the 'materials and forms of competence' as a result 'migrated between co-existing practices' (p. 27). Early gasoline-powered cars were 'extremely troublesome and prone to breaking down' and, therefore, to required specific knowledge and competences to maintain, repair and keep them running (p. 27). Wealthy car-owners thus either had to be mechanically minded or employed chauffeurs to drive and act as mechanics. This 'limited the rate at which the practice spread and influenced the image of risk and adventure associated with it' (p. 27). The eventual widespread adoption of the car accordingly was not only due to mass production and increasing affordability. The material reconfiguration of the car was also essential. Through the inclusion of features such as automatic starting and signalling 'certain capacities' were passed 'from person to machine' which meant cars 'became more reliable and

easier to operate' (p. 30). These advancements in turn changed the meanings and competencies associated with driving which illustrates how a practice co-evolves as different elements shape each other (see Shove et al., 2012, pp. 26-41 for a more extensive discussion).

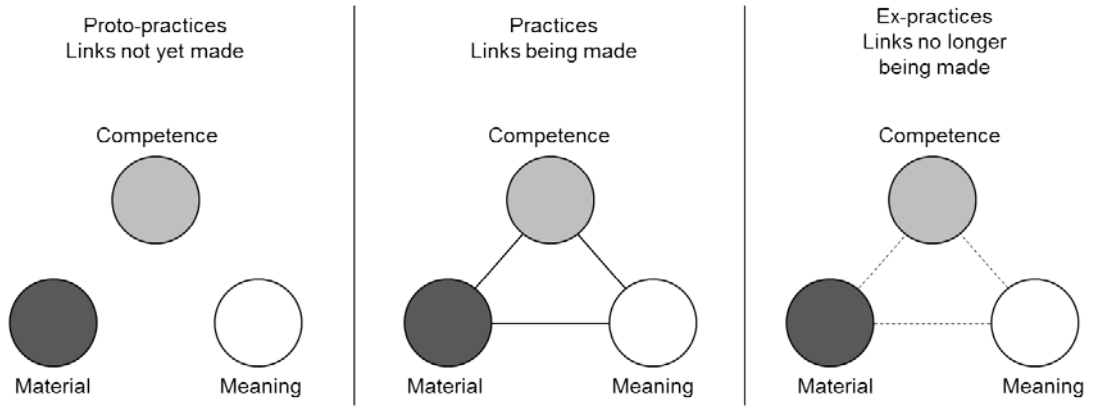

Figure 2.6. Proto-practices, practices and ex-practices. Source: Shove et al. (2012, p. 25).

Second, the 'population of 'carriers' of the practice – people who perform it – can change' (Shove et al., 2012; Watson, 2012, p. 491). Despite de-centring the individual from their analyses, practice-based approaches hold 'that the contours of *any one* practice – where it is reproduced, how consistently, for how long, and on what scale – depend on changing populations of more or less faithful carriers or practitioners' (Shove et al., 2012, p. 63, original emphasis). Practices 'compete for suitably committed carriers', the 'availability of which depends on the relative status and positioning of coexisting practices' (Shove, 2012a, p. 102). The foregoing example highlighted how the emergence of the driving 'exploited connections forged and reproduced' by practices that co-existed and went before such as horse-riding and cycling (Shove et al., 2012, p. 67). Correspondingly, existing communities and networks, in this instance, carriage builders, rich pioneers, city-planners, municipal engineers, the state, and steel, rubber, glass and road-building companies among others (see also Sections 2.4.1 and 4.3), were central to how these new arrangements formed acting as either 'containers that limit[ed] their diffusion' and as 'conduits through which they flow[ed]' (Shove et al., 2012, p. 66).

The rise of the car coincided, unsurprisingly, with a significant decline in cycling in Europe between the 1940 and 1970s (Watson, 2012). In the UK, for instance, cycling which in 1952 accounted for 23 billion km and 13% of mode share by 1972 had

declined to 5 billion km and 1% of mode share (DfT, 2006). This involved a 'process of defection' whereby many practitioners were recruited to the practice of driving which had implications for the persistence of cycling as a practice (Watson, 2012, p. 491). This was not a 'tale of direct substitution', however, as the 'growth of the system of velomobility provided the basis of some of the elements of the coming system of automobility' (Watson, 2012, p. 492). Moreover, 'cars do not simply replace bicycles but afford a different range of uses, meanings and purposes' (Watson, 2012, p. 492). The constituent elements of, and the way it bundles with other practices, have ensured driving has taken on 'habit-like tendencies' (p. 103) in that it entails or implies 'frequent enactment' (p. 104) whereas cycling for many practitioners still persists on albeit on a 'more infrequent or erratic basis' (Shove, 2012a, p. 104). Habits in this way are understood as those that are 'recurrently and relatively consistently reproduced' rather than as 'a sub-set of behaviour, characterised by distinctive driving or stabilising forces' (p. 101; see Section 2.3). The constituent elements of meaning, materiality and competence of habitually enacted practices are 'established, settled and provisionally in place' (Shove, 2012a, p. 105). The emergence and continuing dominance of driving thus cannot be understood in terms of 'changing individual preferences' or habits (Watson, 2012, p. 491) but instead by paying attention to how past and present connections, communities and networks of practitioners have produced and continue to reproduce driving-as-entity.

Third, the 'way in which one practice bundles together with others is significant for changes to both the elements of practices and processes of recruitment' (Shove et al., 2012; Watson, 2012, p. 491). Practices 'relate to each other at the level of how people perform them in the organisation of their days – so driving or cycling of course can be nested between home and work or home and shopping, with their attendant practices' (Watson, 2012, p. 491). Such '[i]nter-practice relations' can 'have emergent, cumulative and often irreversible effects for individual practices, for the elements of which they are composed, and for the spatial and temporal texture of daily life' (Shove et al., 2012, p. 81). A practice approach accordingly enables analysis of the co-evolution of practices of, for instance, mobility, with the other practices with which they are bundled in space and time. In this context, Watson (2012, p. 491) observes:

> the shifting character of grocery shopping is inseperable from shifting patterns of personal mobility, with out of town supermarkets co-evolving with patterns of personal car mobility, and with the broader restructuring of the temporal rhythms of daily life that are enabled by, and make necessary, the convenience of provisioning a household with a single shopping trip to one destination. In the process, the concentration of grocery retail, in space (large supermarkets) and time (e.g., once a week), has made I more difficult for cycling, walking and public transport to retain practitioners.

Accordingly, understanding 'the relations *between* practices – not just interdependent but also competitive relations' are critical to appreciating the dynamics within practices (Shove et al., 2012; Watson, 2012, p. 491). This is because processes of change whether to 'the elements of a practice or to the patterns of recruitment and defection of practitioners to it, are rarely entirely endogenous to the practice concerned' (Shove et al., 2012; Watson, 2012, p. 491). Instead, change occurs as a result of the 'shifting relative location of a practice within broader systems of practice' (Shove et al., 2012; Watson, 2012, p. 491).

In summary, practices involve the 'integration of elements' through performances and 'change when new elements are introduced or when existing elements are combined in new ways' (Shove et al., 2012, p. 120). If they are to survive practices 'need to capture and retain practitioners willing and able to do the integrating' and, therefore, 'willing and able to keep them alive' (p. 120). Meanwhile, '[r]elations between practices take different forms', some of which are 'collaborative', 'competitive', 'weak' or 'strong', and 'matter for the trajectories of the elements and individual practices of which composite bundles and complexes of practice are made' (p. 120). As result practice-based approaches provide different interpretations of action, stability and change to individualistic and socio-technical accounts. The implication of such an account for behaviour change is that 'policy makers and other actors, past and present, can and do influence: a) the range of elements in circulation; b) the ways in which practices relate to each other; c) the careers and trajectories of practices and those who carry them; and d) the circuits of reproduction' (p. 120).

2.4.3 Limitations of practice-based and socio-technical accounts

There are a at least six limitations associated with practice-based accounts (Spaargaren, 2011; Warde, 2005, 2014) many of these overlap with socio-technical approaches (McMeekin & Southerton, 2012; Shove & Walker, 2007; Shove & Walker, 2010). For this reason, the limitations of both approaches are now considered together. It is important to acknowledge in this context that socio-technical systems and practices can be conceptualised in a diverse range of ways, some of which address the limitations identified here and elsewhere (Chapters 4 and 5). This critique, therefore, is more specifically directed at the ways in which these concepts have been deployed to understand the issues of sustainability and climate change.

First, the individual rarely features in 'systemic' accounts of socio-technical approaches (Paterson, 2007) while in social practice accounts individuals are typically understood as 'carriers of a practice' (Reckwitz, 2002, p. 256) or 'the intersection of practices' (McMeekin & Southerton, 2012, p. 351). As a result, both approaches typically fail to recognise the importance of individual subjectivity (Kent, 2014; Paterson, 2007). Second, some socio-technical explanations, including Urry's (2004) account of the system of automobility and to a lesser extent the multi-level perspective employed by Geels (2005b, 2012), fail to consider how the development of these systems are influenced by different political decisions which favoured particular interests, normative visions and modes of power and the ways in which these were disputed and challenged (see Chapter 4; Smith et al., 2005; Paterson, 2007; Goodwin, 2010). Geels (2010, p. 506), in this context, notes that by focusing on the role of social groups the multi-level perspective does in part consider issues of power and politics. Despite this, he concedes that this typically done in an 'ad hoc way' and does not 'provide detailed explanations of sources and changes of power' (Geels, 2010, p. 506; see also Smith et al., 2005). Similarly, practice theorists have also been criticised for paying limited 'attention to the creation of norms, standards and institutions which produce shared understandings and common procedures' (Warde, 2014, p. 295). There have been attempts more recently, however, to recognise the political nature of objects, technologies and infrastructures including

transport and urban planning and how this has and continues to influence the development of automobility (Shove et al., 2015).

Third, corresponding with the first point both socio-technical and practice approaches by moving away from the individual as the central unit of analysis tend to overlook the importance of the promotion and production of particular subjectivities which are a central aspect to the continual emergence and (re)production of and changes in dominant practices such as driving (see Chapter 4; Paterson, 2007; Manderscheid, 2014). Fourth, in stressing the significance of collective meanings both approaches tend to underplay the dynamic ways in which individuals make sense of and negotiate these meanings in everyday life (see Chapter 5; cf. Dewey, 1929a). Fifth, and relatedly, both approaches tend to largely overlook the role that reflection, deliberation and thought play in shaping practices (see Chapter 6). Sixth, practice accounts provide a more sophisticated understanding of habit than individualistic accounts by recognising how they are shaped by particular social and physical contexts but in doing so only consider them to be the outward performances of action (Schwanen et al., 2012). Consequently, they tend to neglect that habits are a disposition or a capacity which is a source of change, an active tendency or a force, constantly emerging out of specific environments and as fundamental to subjectivity (Dewey, 1922a; Schwanen et al., 2012). Overall, practice and socio-technical approaches typically fail to recognise the important role that habits, meanings, subjectivity and thought play in contributing to the emergence, persistence and disappearance of unsustainable practices.

2.5 Rethinking the environments and phases of action through John Dewey's pragmatism

There are a 'number of points of connection' (Shove et al., 2012, p. 5) between practice and socio-technical approaches and Deweyan pragmatism which is introduced in this section. To begin all three approaches refuse to differentiate in advance the social and physical environments of action or accept that particular standards or expectations such as the comfort, cleanliness and convenience of the car as pre-existing or given. Rather as elaborated above they seek to examine how individual action is always embedded in particular social institutions and

arrangements and material or physical settings. Despite practice and socio-technical accounts fail to sufficiently recognise the important role that habits, meanings, subjectivity and thought play in contributing to the emergence, persistence and disappearance of unsustainable practices. This section argues that Dewey's pragmatist philosophy is particularly relevant to contemporary problems such as sustainability and climate change as he emphasises that answers to these challenges should be 'sought amid the processes and materials of life, not in a realm beyond our experience or in the distance future or past':

> [T]he process of growth, of improvement and progress, rather than the static outcome and result, becomes the significant thing … The end is no longer a terminus or limit to be reached. It is the active process of transforming the existent situation. Not perfection as a final goal, but the ever-enduring process of perfecting, maturing, refining is the aim in living (Dewey, 1920, p. 177).

As Hildebrand (2008, p. x, original emphasis) observes Dewey's philosophy is 'one of change', he writes 'not just *about* change', however, 'but *for* a changing world'. Embedded within his various writings is a 'moral commitment' for human achievements such as education, politics, aesthetics and religion 'to adapt, survive and grow' (Hildebrand, 2008, p. x). As a consequence, 'Dewey's philosophy stands out as a twenty-first-century philosophy of sustainability' (Hildebrand, 2008, p. x). The remainder of the section argues that Dewey provides a dynamic understanding of how action continually emerges out of an individual's interactions or 'transactions' with their social and physical environments. It begins by examining his account of habit which he sees as being central to experience (Section 2.5.1). Having examined this concept his understanding of nature and experience are elaborated upon (Section 2.5.2). Section 2.5.3 discusses how for Dewey thought and inquiry arise out of indeterminate or problematic situations. The implications of these insights for understanding action are then summarised in Section 2.5.4.

2.5.1 Dewey on habit: Dispositions, customs, plasticity and breakdown

For Dewey (1922a) habits are different from instincts, or what he often terms 'impulses'. Impulses are 'the unlearned active energy of the organism' (Scheffler, 1974, p. 212) while habits 'are acquired through life rather than given as a

constituent of our biological nature' (Sinclair, 2011, p. 66). Habits by their nature are 'assertive, insistent, self-perpetuating' and become physiologically ingrained and enable and anticipate action (Dewey, 1922a, p. 58). Impulses are channelled, repressed and released by habits which emerge out of the interactions, or what he comes to later term 'trans-actions' (see Section 4.3.2, p. 133; Dewey & Bentley, 1949, p. 79), between an organism and its environment. As Dewey observes 'natural operations like breathing and digesting, acquired ones like speech and honesty, are functions of the surroundings as truly as of a person':

> They are things done *by* the environment by means of organic structures or acquired dispositions. The same air that under certain conditions ruffles the pool or wrecks buildings, under other conditions purifies the blood and conveys thought. The outcome depends upon what air acts upon (Dewey, 1922a, p. 16).

Dewey (1922a) considers not only the physical but also the social and cultural contexts in which habits develop. Custom or the 'widespread [uniformity] of habit' is central to his account and helps to explain the continuing persistence of habits as 'individuals form their personal habits under conditions set by prior customs':

> Each person is born an infant and every infant is subject from the first breath he draws and the first cry he utters to the attentions and demands of others. These others are not just persons in general with minds in general. They are beings with habits, and beings who upon the whole esteem the habits they have, if for no other reason than that, having them, their imagination is thereby limited. The nature of habit is to be assertive, insistent, self-perpetuating (Dewey, 1922a, p. 58).

The simple observation that there are a wide 'variety of individuals and cultures' is evidence for Dewey of the fact that although we may share 'basic instincts' these subsequently 'develop into so many different habits and customs' (Hildebrand, 2008, p. 19).

Habits to reiterate then are tendencies and dispositions which emerge in particular physical, social and cultural contexts and tend to persist as we form our habits in conditions set by previous customs. Rather than fixed or stable entities habits gradually change over time as particular actions or movements are repeated. Moreover, such actions are increasingly carried out without conscious deliberation or thought. Dewey (1922a) emphasise this does not necessarily mean they become unintelligent, mechanical or routine movements. On the contrary, the plasticity of

habits can result in certain dispositions being infused with intelligence, grace and soul which enable creativity and novelty. It is for this reason that Dewey asserts that intelligence and habit, and life and mechanism should not be opposed:

> All life operates, through a mechanism, and the higher the form of life the more complex, sure, and flexible the mechanism. This fact alone should save us from opposing life and mechanism, thereby reducing the latter to unintelligent automatism and the former to an aimless splurge. How delicate, prompt, sure and varied are the movements of a violin player or an engraver! How unerringly they phrase every shade of emotion and every turn of idea! Mechanism is indispensable. If each act has to be consciously searched for at the moment and intentionally performed execution is painful and the product is clumsy and halting. Nevertheless the difference between the mere technician is unmistakable. The artist is a masterful technician. The technique or mechanism is fused with thought and feeling. The 'mechanical' performer permits the mechanism to dictate the performance. It is absurd to say that the latter exhibits habit and the former not. We are confronted with two kinds of habit, intelligent and routine. All life has its élan, but only the prevalence of dead habits deflects life into mere élan (Dewey, 1922a, pp. 70-71).

Reflecting his interest in process Dewey (1922a) is attentive to providing an account of how habits and customs might be changed and how habits breakdown. Here he reinforces the need to take into account the interaction between the individual and their environment. More specifically, he emphasizes the difficulty of changing habits without making a change in the conditions which have formed a habit using the example of a man with bad posture:

> A man who does not stand properly forms a habit of standing improperly, a positive, forceful habit. The common implication that his mistake is merely negative, that he is simply falling to do the right thing, and that the failure can be made good by an order of will is absurd. One might as well suppose that the man who is a slave of whiskey-drinking is merely one who fails to drink water. Conditions have been formed for producing a bad result, and the bad result will occur as long as those conditions exist. They can no more be dismissed by a direct effort of will than the conditions which create drought can be dispelled by whistling for wind. It is as reasonable to expect a fire to go out when it is ordered to stop burning as to suppose that a man can stand straight in consequence of a direct action

> of thought and desire. The fire can be put out only by changing objective conditions; it is the same with rectification of bad posture (Dewey, 1922a, p. 29).

It is for this reason that Dewey advocates the 'continual adjustment and renewal of habits through intelligence' (Scheffler, 1974, p. 212). Here and in his account of how habits breakdown, he places particular emphasis on the role of impulse. For Dewey the operation of intelligence or thought occurs when an individual encounters 'difficulty, conflict, stress, or breakdown in prior habit' (Scheffler, 1974, p. 223). In such instances impulses that would typically be channeled through habit and custom can generate change and the renewal of habits. Impulses are for Dewey (1922a, p. 93) 'the pivots upon which the reorganization of activities turns, they are agencies of deviation, for giving new directions to old habits and changing their quality'. As Scheffler (1974, p. 216) cautions, however, 'impulse is not self-sufficient in such reorganization, which may proceed intelligently or unintelligently':

> Intelligence is a mode of utilization of impulse. Interpreted as a higher level of moral disposition, it is itself not opposed to habit. It is, rather, a superordinate habit of habit-improvement and reconstruction'.

More importantly, Dewey argues that the 'capacity for reflection, our ability to pause and consider alternative ways of proceeding in our actions, is a derived ability, grounded in the more basic habitual comportment in the world' (Brinkmann, 2004, p. 11). Intelligence and thought, judgement, deliberation, reflection and reason, are no different to other habits and 'have one and the same function: to restore that balance which because of changing internal and external conditions is constantly interfered with in spite of all habit can do' (Allport, 1951, p. 277-278). In other words (Brinkmann, 2004, p. 11, emphasis in original):

> we '*know how* by means of our habits' (Dewey, 1922a, p. 177, emphasis in original), and this *knowing how* actually underlies, and is even a precondition for, our 'knowledge *of* and *about* things, knowledge *that* things are thus and so, knowledge that involves reflection' (Dewey, 1922a, p. 177).

In order to say more about the breakdown of habit we first need to examine the way in which Dewey comes understand experience and the importance he places on the problematic aspects of the situation.

2.5.2 Dewey on experience and nature: Events and situations

Dewey emphasises that experience is a process rather than a thing or object that we have or possess:

> We begin by noting that 'experience' is what [William] James called a double-barrelled word. Like its congeners, life and history, it includes *what* men do and suffer, *what* they strive for, love, believe and endure, and also *how* men act and are acted upon, the ways in which they do and suffer, desire and enjoy, see, believe, imagine – in short, processes of experiencing (Dewey, 1929a, p. 10).

Such a conceptualisation also recognises that an experience is not an 'isolated fact' but rather 'a nexus of active relations which is not only continuous with the world but with the past, the present, and the future' (Cutchin, 2008, p. 1559). Experience is, therefore, temporal and dynamic, and much like habit, constantly emerges out of an organism's transaction with their environment.

Nature, for Dewey, is central to '*how* we experience *what* we experience' (McDermott, 1973, p. xxv). Rather than abstracted or separated from:

> experience is *of* as well as *in* nature. It is not experience which is experienced, but nature–stones, plants, animals, diseases, health, temperature, electricity, and so on. Things interacting in certain ways *are* experienced; they are what is experienced. Linked in certain other ways with another natural object–the human organism–they are *how* things are experienced as well. Experience thus reaches down into nature; it has depth. It also has breadth and to an indefinitely elastic extent. It stretches. That stretch constitutes inference (Dewey, 1929a, p. 4).

Nature, in other words, 'has a life of its own, undergoing its own relatings, which in turn become what we experience' (McDermott, 1973, p. xxv). Moreover, it is because of the immediacy of our relationship with nature that knowledge 'stretches' and grows 'in increasing sophistication and complexity' (Ryan, 1997, p. 1010). Our constant relations or *continuity* with nature has other implications. Most notably, we experience the world as contingent, precarious and uncertain:

> Man fears because he exists in a fearful, an awful world. The *world* is precarious and perilous. It is as easily accessible and striking evidence of this fact that primitive experience is cited. The voice is that of early man; but the hand is that of

> nature, the nature in which we still live. It was not the fear of gods that created the gods (Dewey, 1929a, p. 39).

The need for human thought and action is directly attributable to the indeterminacy of the future and the recognition that change is a fundamental state of nature (Dewey, 1929a). Human experience, for Dewey (1929a) then, is continuous, unified and evolves in relation to nature and its unfolding processes and events, which because of their precarious, contingent and indeterminate character, 'serve up problems, and meaning, for humans' (Cutchin, 2008, p. 1560).

Events

In outlining his account in *Experience and Nature*, Dewey (1929a) develops the concepts of events and situations as a way of capturing our complex relationship with and experience of nature. 'Events' or what he sometimes terms as 'affairs' are a way of articulating the continuous, precarious, contingent and changeable character of existence. In doing so he seeks to emphasise that 'everything in the universe *happens*; everything has a beginning and an end. All objects of our concern are made or formed, and all of them decay and vanish' (Cutchin, 2008, p. 1560):

> Empirically, individualized objects, unique affairs, exist. But they are evanescent, unstable. They tremble on the verge of disappearance as soon as they appear (Dewey, 1929a, p. 123).

Dewey (1929a, p. 62) asserts that even things and objects that we identify as 'structures' are traits of events rather than 'something intrinsic' (Cutchin, 2008, p. 1560). Events do not necessarily involve human participation and experience because, as observed earlier, 'nature has a life of its own' (McDermott, 1973, p. xxv). Despite seeming to be an inherently stable object, 'a structure is only stable in its relatively slow rate of change compared to what we typically call a process (a more perceptibly changing event)' (Cutchin, 2008, p. 1560). Events, as a result, are 'the sets of natural complexes, ever-changing constellations of natural elements, which produce structures and processes' (Cutchin, 2008, p. 1560). In elaborating on Dewey's notion of experience, Cutchin helpfully uses the example of a building as a way of clarifying the relationship between structures and events:

> [A] building can be viewed literally and theoretically as a structure, but it is a certain set of elements and events that come together for it to take form: the

> development of an idea to build, a loan being granted, materials being delivered, and coordinated labour are events that produce the so-called structure. The building is the emergent and changeable empirical characteristic, the by-product of certain events (Cutchin, 2008, p. 1560).

Events or affairs, as the example of the building suggests, are emergent, have qualities and histories. Moreover, events are the source of change in nature, and in turn, nature is 'an affair *of* affairs' (Dewey, 1929a, p. 83), 'wherein each affair, no matter how linked up it may be with others, has its *own* quality' (Cutchin, 2008, p. 1560). In this way each event is unique but can never be completely separated from other events which we might, therefore, view as 'a multitude of interactions in space-time' (Cutchin, 2008, p. 1561). Put another way, 'nature consists of a series of overlapping and interpenetrating transactions' (Bernstein, 1966, p. 84). Events as consequence can be 'contextually differentiated based on the specific mixture of overlapping elements' (Cutchin, 2008, p. 1561). The implication of this is that our unified experience of nature involves 'an explicitly temporal perspective on nature and causation' (Cutchin, 2008, p. 1561):

> Every event as such is passing into other things, in such a way that a later occurrence is an integral part of the *character* or *nature* of present existence. An 'affair', *Res*, is always at issue whether it concerns chemical change, the emergence of life, language, mind or the episodes that compose human history. Each comes from something else and each when it comes has its own initial unpredictable, immediate qualities, and its own similar terminal qualities. The later is never just resolved into the earlier […]. We may explain the traits of maturity by better knowledge of childhood, but maturity is never just infancy plus (Dewey, 1929a, p. 93).

For Dewey then, events are 'always emergent with dynamic qualities, but events also have ends, or terminal points' (Cutchin, 2008, p. 1561). Our experiences of the weather and seasons (see Chapter 5) are testament to the fact that events, however, 'are not final because their ends are actually transitions into new event beginnings', in other words, 'new events emerge out of the old' (Cutchin, 2008, p. 1561).

Situations and meaning

Dewey (1929a), through the concept of events or affairs, attempts to capture how nature is experienced as a continuous unfolding of various processes and happenings which are inherently contingent, precarious and uncertain. The concept of situations, on the other hand, allows him to 'reconcile the depth and holism of experience vis-à-vis nature and the dynamic emergence of events and affairs for human action' (Cutchin, 2008, p. 1561). We never encounter events as separate entities, he contends, because they are always intertwined:

> In actual experience, there is never any such isolated singular object or event; an object or event is always a special part, phase or aspect of an environing experienced world – a situation. The singular object stands out conspicuously because of its especially focal and crucial position at a given time in determination of some problem of use or enjoyment which the total complex environment presents (Dewey, 1938, p. 72).

Situations 'provide the context for understanding events and meanings' (Cutchin, 2008, p. 1561) and are illustrative of the 'lived qualitative unity of continuously developing experience' (Alexander, 1987, p. 105). For Dewey (1938) situations have a number of specific dimensions including:

> they are open-ended, durational-extensional-existential affairs not to be confused with 'surroundings'; they are both immediate and mediated by human thought and action; they have problematic aspects for those experiencing them, and; although they are unique, but as parts of a field, they are connected to other situations (see also Alexander, 1987, pp. 106-110; Cutchin, 2008, p. 1561).

Experience takes place, therefore, in situations which 'are individuals … each one is just that one and no other and as such will never be repeated. Yet situations are not atomic; they have relations with each other and with the past and future; there may be traits appearing in a uniquely qualified way in one situation which appear in a differently qualified way in another' (Alexander, 1987, p. 113). He understands these individuals as 'a process, an activity, which always has potentialities to act and be acted upon' (Alexander, 1987, p. 114). Characterised in this way situations are 'organic wholes' which have 'both an immediate aspect and a mediated one, an actual and a potential side, a radically unique and a formal or general character'

(Alexander, 1987, p. 114). Situations are undergone or had, enjoyed or suffered, in experience. The ways in which they are had or undergone is mediated in part by habits and as discussed below meanings. 'Habits enter into the *constitution* of the situation; they are *in and of* it, not, so far as it is concerned, something outside of it' (Dewey, 1911, p. 552).

Meanings 'reflect the complexity of situations as both immediate and mediate, as qualitative and relational' and are derived from the use and interpretation of things (Alexander, 1987, p. 118). It is the 'double function of meaning, namely signification and sense' which ensures the mind (intellect) is present in a situation (Dewey, 1929a, p. 261). Sense is 'the meaning of the whole situation as apprehended' (Dewey, 1929a, p. 261). Meanwhile, signification 'involves using a quality as a sign of something so that it may serve as a 'clew' to the sense of a situation' (Tiles, 2003, p. 60). Habits and a sense for a situation ensure the 'flood of action … overrides all but the most considerable obstructions' as it 'flows [too] forcibly and rapidly in one direction to be checked' (Dewey, 1929a, p. 314). These ''moment[s]' of hesitation' force us to 'stop and think', observe, recollect and anticipate before redirecting or intensifying a particular course of action (Dewey, 1929a, p. 314). It is during these 'problematic' or 'undetermined' moments an object or event is distinguished as a functional part of a situation and as a consequence they become events '*with* meanings' (Dewey, 1929a, p. 314). They have discriminated qualities of a qualitative situation because of they have 'meanings which go beyond the moment or the immediate situation ', they 'are relations', distinguished because of their use or potential consequences (Alexander, 1987, p. 115; Tiles, 2003).

Figure 2.7 provides a static, but importantly not a God's eye, view of John Dewey's process ontology. The 'spatial separation of 'nature' and 'experience' is not intended to indicate an ontological or epistemological differentiation, only a temporal one – as 'nature' is what has not yet been experienced, not what cannot be experienced' (Hildebrand, 2003, pp. 62-63). 'Transudative' denotes the 'period exchanges', which are characteristic of 'functioning', that occur across boundaries as the 'categories (*experience* and *objects known, experience* and *nature*) are mutually constitutive' (Hildebrand, 2003, p. 63). As Dewey remind us: 'Experience is not a veil that shuts man off from nature; it is a means of penetrating continually further into the heart of

nature' (Dewey, 1929a, p. iii). 'Plastic' signifies the fact that 'the content of knowledge may increase or decrease, depending on the circumstances surrounding inquiry' (Hildebrand, 2003, p. 63). Knowledge ('objects known'), Hildebrand explains lies inside 'experience' in the diagram 'because knowing is one among many varieties of experience'. This is a point which Dewey re-iterates, 'Knowledge itself must be experienced; it must be had, possessed enacted, before it can be known. . . . We have to identify cases of knowing by direct denotation before we can have a reflective experience of them, just as we do with good and bad, red and green, sweet and sour' (Dewey, 1981 cited in Hildebrand, 2003, p. 62).

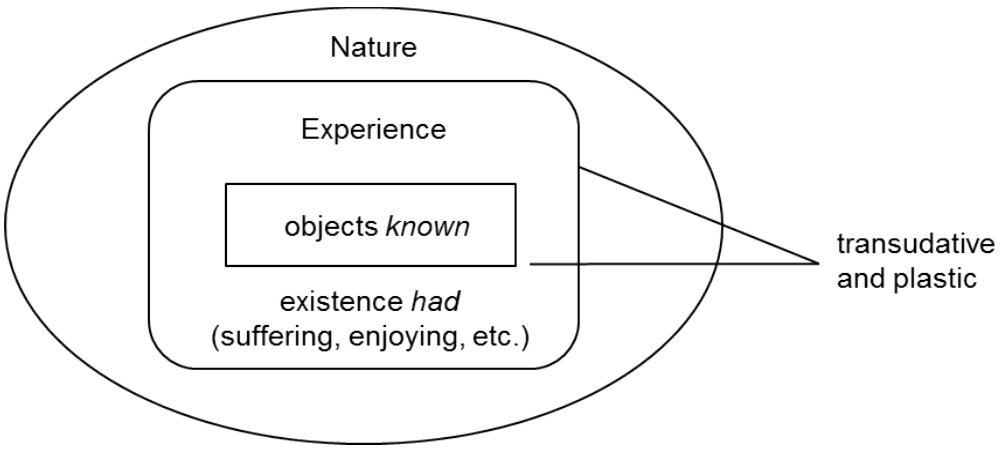

Figure 2.7. A static (but *not* God's-eye) view of John Dewey's process ontology. The 'spatial separation of 'nature' and 'experience' is not intended to indicate an ontological or epistemological differentiation, only a temporal one – as 'nature' is what has not yet been experienced, not what cannot be experienced'. Source: Hildebrand (2003, pp. 62-63).

2.5.3 Dewey on thought and inquiry: The indeterminate or 'problematic' situation

In Section 2.5.2 we saw how it is during the problematic situation that reflective thought, or what Dewey understands as inquiry, arises. Unlike other scholars who reserve the term inquiry for scientific endeavours, Dewey (1929b, pp. 86-87) emphasises active inquiry and experimentation are part of everyday life. In doing so he emphasises three features of inquiry. First, he understands all forms of experimentation in terms of doing or activity which entail 'the making of definite changes in the environment or in our relation to it' (p. 86). Second, 'experiment is not a random activity but is directed by ideas which have to meet the conditions set by the need of the problem inducing the active inquiry (p. 86). It is the third and final feature through which 'the other two receive their full measure of meaning' (p. 86).

The ‘outcome of the directed activity’ he asserts result in ‘the construction of a new empirical situation in which objects are differently related to one another, and such that the consequences of directed operations form the objects that have the property of being known (pp. 86-87). He illustrates these points by giving the example of a ‘rudimentary prototype of experimental doing’ which is ‘found in ordinary procedures’:

> When we are trying to make out the nature of a confused and unfamiliar object, we perform various acts with a view to establishing a new relationship to it, such as will bring to light qualities which will aid in understanding it. We turn it over, bring it into a better light, rattle and shake it, thump, push and press it, and so on. The object as it is experienced prior to the introduction of these changes baffles us; the intent of these acts is to make changes which will elicit some previously unperceived qualities, and by varying conditions of perception shake loose some property which as it stands blinds or misleads us (Dewey, 1929b, p. 87).

Inquiry, as Dewey’s example of an unfamiliar object illustrates, comes from a situation, not from an individual or a mental state. This situation is ‘characterized by a ‘pervasive qualitative character’ of, for instance, ‘doubtfulness, precariousness, uncertainty, indeterminacy [and] unsettledness’ (Brown, 2012, p. 278). Moreover, the situation is ‘in part defined by the interactions or transactions between agents and environments that characterize human practices’ and ‘the doubtfulness that characterizes an indeterminate situation is a result of some discoordination or disequilibrium in those interactions’ (Brown, 2012, p. 278). The example highlights how inquiry, therefore, is a ‘transformation in the sense that the resolution of a problematic situation or perplexity in general requires not just a change in the inquirer’s state of mind or beliefs but a change in the situation itself’ (Brown, 2012, p. 279). Such a change and the associated resolution of a problem may not necessarily involve a physical modification of the environment:

> changing the beliefs, attitudes, and habits of the inquirer changes the relations, interactions, and activities that characterize the situation and will lead to immediate changes to the potentialities of objects and mediate physical changes to the environment that follow from putting the solution into practice (Brown, 2012, p. 279).

The final product of inquiry is a judgement:

> The objective and final product of inquiry is a judgment. Inquiry continues until one of the hypotheses is adjudged to be the most warranted among the alternatives, and the alternatives have been more or less ruled out. A judgment that satisfies the conditions of good inquiry and can be used as a settled means to future inquiry has the property of *warranted assertability* (Brown, 2012, p. 280).

Dewey's account of inquiry, as Figure 2.8 demonstrates, is two-dimensional in that the first dimension is 'captured by the definition' and the second 'by the functional phases' (Brown, 2012, p. 284). The first dimension, more specifically, accounts for the origin and goals of inquiry. Inquiry starts with an 'indeterminate situation, taken up as a problematic situation by the inquirer, while inquiry results in judgment and the resolution of that indeterminate situation into a situation that is determinate and unified' (Brown, 2012, p. 280). Thus inquiry has three temporal stages an 'indeterminate situation, inquiry, and judgment' (Brown, 2012, p. 280).

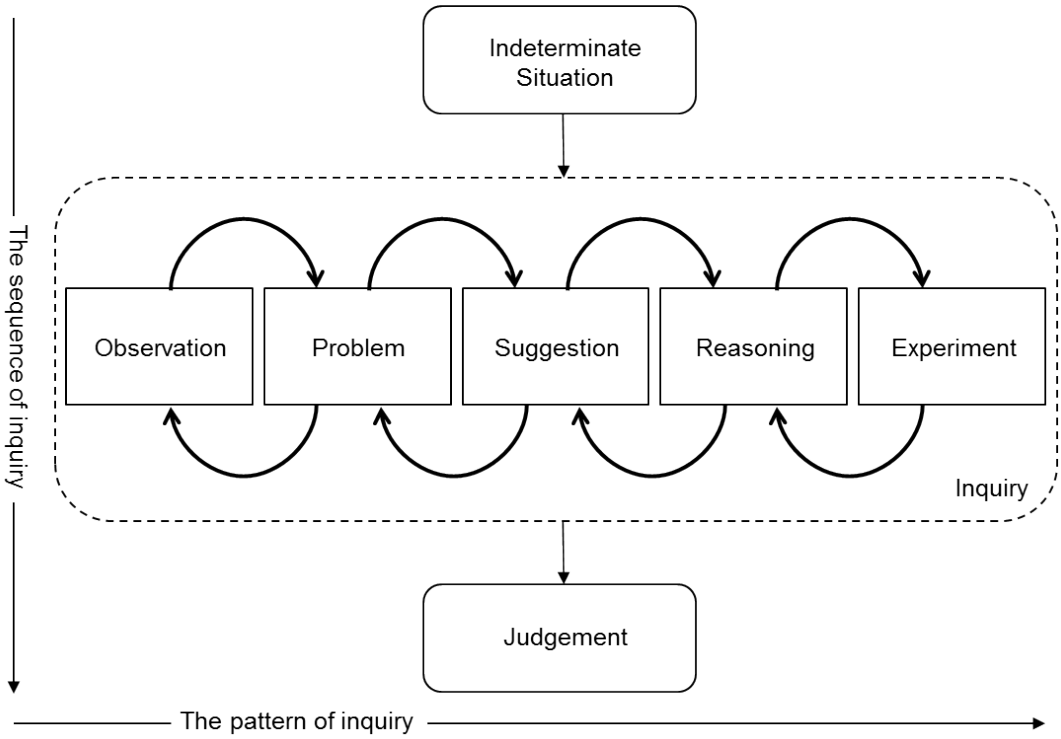

Figure 2.8. Dewey's two-dimensional theory of inquiry. The first dimension is the linear sequence of stages captured by Dewey's 'definition' of inquiry. The second dimension is the nonlinear set of functional phases that Dewey calls the 'pattern of inquiry'. Source: Brown (2012, p. 286).

The second dimension is the 'characteristic pattern of inquiry as a set of functionally defined and interrelated phases in a reciprocal and iterated process—following this pattern is what makes inquiry 'controlled and directed" (Brown, 2012, p. 280).

Brown (2012, p. 286) summarises these five functional phases in the following manner:

> 1. *Observation* collects data or determines the facts of the case in order to take stock of the fixed conditions of the situation that shape the problem.
>
> 2. *Institution* of a problem specifies what is perplexing or indeterminate in the situation in order to formulate a problem statement.
>
> 3. *Suggestion* proposes hypotheses (or ideas) for solving the problem.
>
> 4. *Reasoning* refines hypotheses, brings hypotheses into relation with larger theories and conceptual frameworks, coordinates observations and hypothesis, suggests new observations, and proposes experimental tests.
>
> 5. *Experimentation* tests the hypothesis by tentative or limited application to the situation that involves intervening or acting in the situation.

This pattern includes 'normative (but defeasible) constraints on inquiry, but it does not distinguish between scientific from non-scientific types of inquiry, nor does it present a set of methodological procedures or a step-by-step algorithm guaranteed to produce successful results' (Brown, 2012, p. 280).

2.5.4 Implications of a Deweyan-inspired framework for understanding the environments and phases of action

A conceptual framework inspired by Deweyan pragramatism has five interconnected implications for understanding contemporary commuting habits in Auckland and London, and the environments and phases of action more generally. First, the individual continuously becomes a self or a subject through experience as they act on and simultaneously are acted upon by the social and physical environments (Sections 2.5.1 and 2.5.2). Second, habits which are formed and operate in action are active, energetic and dominant modes of response which emerge in particular environments and are central to the constitution of the self (Section 2.5.1). Third, the environments of action are experienced as situations which are organic wholes characterised by immediacy and mediacy, actuality and potentiality, uniqueness and generalness (Section 2.5.2). Fourth, events or objects, which are functional parts of situations, take on meaning through shared social activities but also in instances whereby temporary interfering or inhibiting action an event or object becomes problematic

(Section 2.5.2). Fifth, habit always qualifies thought by limiting the channels in which it operates and providing a background of objects and meanings that allow us to assess and evaluate a setting and, therefore, habit and thought should not be understood as separate but rather as different phases in human experience (Section 2.5.3).

2.6 Conclusion: Rethinking attempts to de-carbonise habits of mobility

This chapter has explored how individualist, socio-technical, practice and Deweyan pragmatism have or could inform attempts to reconfigure existing unsustainable and high carbon lifestyles and patterns of consumption in less carbon and resource intensive ways. The similarities and differences between these approaches are summarised in Table 2.4. As a way of situating this discussion the chapter began by making a distinction between the environments and phases of action. The environments of action were taken to be both internal (bodily needs, sensory perceptions, emotions, values, desires, experiences, embodied capacities and skills, and conscious thought) and external (social and physical contexts). Meanwhile, in delimiting the phases of action a distinction was made between automatic, routine or habitual action on the one hand and rational, deliberative or reflective action on the other. In characterising action in this way it was noted that each of the approaches differ in the ways they understand these environments and phases. The degree to which each paradigm assumes human behaviour to be a dynamic and continuous consequence of individuals interacting with their social and physical environments varies. In contrast, although the paradigms diverge on how often rational or conscious action occurs and the events or environments which give rise to it there is some consensus that automatic, routine or habitual action tends to prevail. These differences and similarities were then explored by examining each of these approaches in turn.

Table 2.4. Four approaches for researching and governing environmental and climate change. Adapted from Spaargaren (2011), Strengers (2012) and Schwanen et al. (2012).

Individualist approach (psychology/economics)	**Systemic approach (sociology/science studies)**	**Practice approach (anthropology/sociology)**	**Habit approach (psychology/sociology/philosophy)**
Individuals and their attitudes are key units of analysis and policy	Producers/states and their strategies are key units of analysis and policy	Practices (and their elements such as competences, meanings and materials) are the central unit of analysis and change	The stability and change of habits (characterised by assemblages of body-mind-world) are the central unit of analysis and change
Behavioural change of individuals is decisive for environmental change	Technological innovation within the production sphere is decisive for change	Changing the elements of practices are decisive for change	Formation, endogenous renewal and displacement of habit assemblages is decisive for change
Individual choices are the key intervention targets (micro level)	Socio-technical systems are the key intervention targets (macro-level)	The elements that 'hold' practices together are the key intervention targets (meso-scale)	Relatively stable habit assemblages of body-mind-world are the key intervention targets (meso-scale)
End-users/consumers determine the fate of green products, ideas and technologies	Technologies and markets determine the fate of green products, ideas and technologies	How they are taken up, change through changing or mixing elements, and through innovation in practice determines the fate of green products, ideas and technologies	How they are incorporated into and gradually change or displace existing and relatively stable habit assemblages, in turn, becoming new tendencies, determines the fate of green products, ideas and technologies
Key policy instruments and approaches: social (soft) instruments (persuasion through information provision)	Key policy instruments and approaches: the use of direct regulation targeting providers (laws, market based instruments)	Key policy instruments and approaches: identifying and supporting the creation of technological, social and cultural innovations.	Key policy instruments and approaches: identifying and supporting the creation of technological, social and cultural innovations and the development of new bodily capacities and tendencies.

First, it was argued that libertarian paternalism or nudge theory is the latest of a number of individualistic approaches which have informed attempts to research, theorise and govern the actions of citizens. This approach reflecting its economic and psychological origins starts from the assumption that individual choice or the micro-scale is the most suitable component of analysis, policy and intervention. It was argued despite attempting move beyond earlier individualistic approaches informed by rational choice that libertarian paternalism is still underpinned by a number of individualistic assumptions. These include, but are not limited to, being founded on binary positions (e.g., mind and body; subject and object; internal and external), failure to account for the ways in which choice is conditioned, constrained and enabled and a simplistic portrayal of habit as the unreflexive and automatic response of individuals to environmental cues. Reflecting these limitations it was suggested this paradigm provides a rather static and restricted account of the environments and phases of human action which severely limits the role it can play in facilitating shifts to less resource and carbon intensive modes of everyday mobility.

Socio-technical and practice-based approaches and Deweyan pragmatism were then introduced. Socio-technical approaches seeks to examine at a systems level how environmentally problematic ways of life emerge, are reproduced and how they change. This literature it was observed emphasises the ways in which the social and the technical become intertwined and co-evolve together. Notions of social-technical systems and co-evolution it was observed have been employed as part of attempts to explain how a range of resource intensive practices emerge, persist, fade and disappear by practice theorists. Practice-based approaches provide meso-scale accounts which urge analysts and policy makers to turn their attention to the various elements which 'hold' practices together ('practice-as-entity') and how they are (re)produced ('practice-as-performance'). Through such attentiveness they are able to illustrate how action is a dynamic and relational achievement which is conditioned, enabled and constrained by social and physical contexts. Dewey's pragmatism also offers a meso-scale account which shares a number of similarities yet remains distinct from socio-technical and practice-based approaches. Following Dewey action is considered to continually emerge out of an individual's interactions with their social and physical environments. Such an interpretation recognises the dynamic, relational, more-than-individual, contextualised and embodied nature of

action. In the process he provides a means through which to account for the significance of habits, meanings and subjectivity play in contributing to unsustainable and resource intensive ways of life which is lacking in socio-technical and practice-based approaches.

Overall, this chapter has sought to emphasise that if shifts to less resource and carbon intensive modes of everyday mobility and living in general are to be realised we need to rethink existing understandings of the environments and phases of action. In particular, there is an imminent need to develop a deeper understanding of how habits emerge, persist and change. This is because habits not only dictate action they also mediate our interactions with the social and physical world and constitute who we are as individuals. The individualist, socio-technical and practice approaches it has been suggested are inadequate in this context. Dewey's pragmatist philosophy, in contrast, provide a point from which we might start to re-think habits as 'active and self-perpetuating, as more than repetition and automaticity, as separate from instinct', and as a means of overcoming Cartesian or Kantian dualisms such as mind-body, internal-external, freedom-necessity and subject-world (Schwanen et al., 2012, p. 526). More specifically, such a conceptualisation of habit enables an understanding of: a) the practical challenges associated with changing behaviour and; b) how new modes of conduct might emerge and take hold. Each of the empirical chapters (Chapters 4-6) that follow seeks to illustrate the potential of a Deweyean-inspired approach for understanding the environments and phases of action.

Chapter 3.
Researching the mundane and habitual: Modes and moments of engagement with everyday mobilities

3.1 Introduction

This chapter examines the methodological approach of the project and broader issues related to methodology. The aim of the chapter is to provide an overview of the empirical basis of the analytical chapters that follow. It outlines a rationale for the approach adopted in researching the issues raised in Chapters 1 and 2 and explains how the conceptual framework is developed into a research project. Unlike the majority of the PhD, this chapter is written from a first person perspective. The only other occasions in the thesis when this perspective is employed are in excerpts from field notes or interviews. The remainder of the chapter is divided up into seven sections. First, Section 3.2 elaborates on my approach to the thesis including how the subsequent empirical and conceptual focus of the thesis emerged out of initial pilot research and fieldwork in London and an engagement with literatures on comfort and mobility. Second, Section 3.3 discusses the challenges involved in researching habitual and routine practices before detailing my research approach. Third, Section 3.4 provides a brief overview of pilot research undertaken in Christchurch, New Zealand (Section 3.4.1) and London, UK (Section 3.4.2) and what implications it had for the thesis. Fourth, Sections 3.5 provides details about the semi-structured interviews and the go-alongs conducted as part of the research. Fifth, Section 3.6 elaborates upon how the data was analysed using the general procedures of the 'ground theory' methodology. Sixth, Section 3.7 identifies the limitations of the thesis. Seventh, it concludes in Section 3.8 by briefly reiterating the aim and purpose of the chapter.

3.2 Approaching the thesis

This section elaborates on my approach to the thesis in three ways. It starts by examining how the ideas underpinning what was eventually a successful application to the Commonwealth Scholarship Commission of the UK developed during my

three years working as a social scientist. Following on it explores how these research interests informed my first year PhD proposal and significantly shaped the eventual design and approach to the thesis. Third, it details how subsequent empirical and conceptual focus of the thesis emerged out of initial pilot research and fieldwork in London and an engagement with literatures on comfort and mobility.

3.2.1 Research inception: Shifting ideas and countries

The PhD research was funded through the Commonwealth Scholarship and Fellowship Plan. In the detailed research proposal submitted as part of the application I proposed to investigate how current, emerging and future trends in everyday consumption could result in shifts that exacerbate the impacts of and further contribute to climate change. Possible shifts I identified were two-fold. First, the potential that increasing public interest in growing food at home or in allotments might result in greater demand for water and oil. Second, the possibility that temperature increases might result in increased installation and use of high energy technologies and systems such as air-conditioning in residential properties. This initial proposal reflected research interests developed during my three years working as a social scientist at GNS Science, a government-owned research and consultancy organisation in Lower Hutt, New Zealand. This role contributed to my thinking in three ways. First, I became increasingly aware of the difficulties associated with facilitating shifts towards less resource intensive and low carbon modes of living and the limitations of individualistic approaches to behaviour change (see Section 2.3.3). Moreover, I began to engage with various social science literatures which emphasised the need to re-imagine and re-frame climate change as locally understood and relevant issues (e.g., Brace & Geoghegan, 2011; Macnaghten, 2003; Nordhaus & Shellenberger, 2007; Owens, 2000; Prins et al., 2010; Shove, 2003, 2010; Slocum, 2004).

Second, involvement in a project which examined residential heating and cooling further encouraged a developing interest in everyday practice (Doody & Becker, 2011). The research revealed there was increasing uptake of air-source heat pumps and that people were starting to intermittingly use these rather than passive methods (i.e., opening windows and doors) for cooling in the summer. Consequently, it appeared that the growing popularity of ‘energy efficient’ heat pumps was creating a

new energy demand during summer and potentially new expectations of comfort (see also Gram-Hanssen et al., 2012). Additionally, many migrant (see also Cupples et al., 2007) and New Zealand-born participants suggested that due to their lack of insulation, double-glazing and central heating, that New Zealand houses were cold and uncomfortable. In making sense of these findings, I was drawn to Elizabeth Shove's writings on comfort (Chappells & Shove, 2005; Shove, 2003), buildings and design (Shove et al., 2008; Shove et al., 2007) and social practice theory (Shove, 2004; Shove & Pantzar, 2005). Her work and these insights encouraged me to further reflect on how energy and other resources are consumed in the course of a range of habitual and routine activities and the role that particular contextual conditions (e.g., the installation of a heat pump or shifting countries) play in shaping people's expectations of thermal comfort.

Third, I became interested in the emerging literature on low carbon lifestyles. Here, Kingsley Dennis and John Urry's (2009) book *After the Car*, which explores how the future of travel is being shaped by climate change, peak oil, population growth and the digitisation of many aspects of economic and social life was especially important. Heather Chappells and Elizabeth Shove's (2005) work which explored the extent to which standardised notions of thermal comfort and responses to anticipated climate change are becoming embedded in the specification and construction of future building, heating and cooling technologies was another significant influence (see also Shove et al., 2008). In different ways, these works highlighted the possibility of generating insights into the trajectories of contemporary patterns of demand and consumption and how these might be reconfigured in less resource intensive and carbon dependent ways. These three areas of interest, albeit in different guises, formed the basis of the application for the Commonwealth Scholarship and Fellowship Plan, my first year proposal and eventually the thesis. The next section elaborates on how these interests informed the design of the research and how the project shifted from originally focusing on thermal comfort and practices to everyday mobility and Deweyan pragmatism.

3.2.2 Developing the thesis: Social practice theory and thermal comfort

These research interests and the initial empirical and conceptual focus were apparent in my first year PhD proposal. The original aim of this proposal was to demonstrate how significant behaviour changes might be facilitated by focusing on people's thermal comfort practices in and around the home. The three related objectives were:

1. To examine how the ways and processes of facilitating changes in practices and behaviours around the home have been understood in previous research.
2. To understand how current thermal comfort practices in and around the home have emerged, persisted and changed.
3. To examine the ways in which current thermal comfort practices might be (re)configured in the future.

Moreover, I proposed that I would develop a theoretical framework informed by socio-cultural/technical understandings of comfort and social practice theory (see Sections 2.4.1 and 2.4.2).

The design of the methodological approach and the project from the outset corresponding with this theoretical framework was guided by three central concerns. First, exploring ways of investigating routine, mundane and habitual activities which people may often perform without thought, consider inconsequential or rarely reflect upon (see Section 3.3). Second, identifying methods which provide some insight into how individuals engage with and use things, objects, technologies and infrastructures in sensuous and embodied ways. Third, ensuring that this approach was sensitive to the ways in which an individual's actions are always conditioned by their social and physical environments. These last two concerns corresponded with social practice theory's focus on the elements or entities which are integrated during routine action, namely: 1) the material (objects, infrastructures, human bodies); 2) the symbolic (meanings, cultural conventions, norms) and 3) the procedural (know-how, competences).

Reflecting upon these concerns the decision was made to proceed with the original plan of conducting research in both New Zealand and the United Kingdom proposed in the Commonwealth Scholarship application. This decision was initially based on my desire to understand the role that different histories of building and construction

(e.g., housing types, building materials), technologies (e.g., wood burners, central heating, heatpumps) and systems of provision (e.g., gas and electricity) played in shaping social norms and conventions and how these both in turn conditioned people's thermal comfort practices. Here, I was particularly interested in further exploring some of the findings from the GNS Science research, especially migrant and local people's experiences of thermal comfort. Accordingly, I decided to focus on New Zealand and British migrants for practical and logistical reasons (e.g., existing contacts and networks, language) but also, reflecting New Zealand's British colonial past and ongoing associations, many cultural similarities.

Table 3.1. The characteristics of the two fieldwork sites, Auckland, New Zealand and London, UK.

Characteristic	**Auckland, NZ**	**London, UK**
Population	1,415,550	7,825,200
Area	482.9 km^2	1,570 km^2
Density	2,900/km^2	4,978/km^2
No. of expatriate residents	90,429 (UK-born)	27,493 (NZ-born)
Climate type	Warm-temperate oceanic climate	Temperate oceanic climate
Average high °C	19.0	15.2
Average low °C	11.3	7.5
Precipitation (mm)	1212.4	592.2
% Humidity	82.3	92.3
Mean sunshine hours (Year)	2003.1	1480.5
Main housing types	Detached, wood construction	Attached/semi-detached, brick construction
Main heating types	Wood burners, electric heating	Gas central heating

Auckland and London were subsequently selected as the two fieldwork sites (see Table 3.1). London was chosen as it is one of the most popular destinations for temporary or permanent New Zealand migrants in the UK. Similarly, Auckland was

selected as it is locale where the highest numbers of British born migrants in New Zealand have settled. The research was not explicitly designed, however, to be a comparative study. Instead, the intention was to understand the role that the social and physical environments of Auckland and London played in conditioning individual's actions and thoughts. Moreover, it was envisaged that these 'new' conditions might contradict or challenge migrant's cherished, embodied and unreflexive ways of doing thus creating opportunities for these participants to further reflect on their current and previous experiences and expectations of thermal comfort. Table 3.1 presents some of the social and physical characteristics of both of the fieldwork sites which might have implications for thermal comfort. Section 3.2.3 now details how the current empirical and conceptual focus of the thesis emerged out of initial pilot research and fieldwork in London.

3.2.3 Reconfiguring the thesis: From practices and thermal comfort to mobility and Deweyan pragmatism

The initial research conducted in Christchurch, New Zealand sought to understand the potential of using research diaries as a means of examining habitual and routine everyday activities associated with thermal comfort in and around the home (Section 3.4). Some of the empirical materials generated revealed the ways in which comfort was negotiated in various embodied and sensuous ways in a range of different spaces. These materials encouraged me to reflect on the limitations of understanding these practices simply through the lens of 'thermal comfort'. This encouraged me to read further around the notion of comfort. The RGS-IBG (Royal Geographical Society-Institute of British Geographers) Conference in Edinburgh, Scotland on 3-5 July 2012 helped to reinforce many reservations that had emerged out of my close reading of this literature. Two sessions titled 'Geographies of comfort: People, energy and domestic habitation' were particularly important in this context. All of the talks in these sessions focused on 'thermal comfort', practices (predominantly heating and cooling) and, with the exception of two talks (e.g., care homes and work places), the 'home'. There appeared to be little reflection on the ways in which comfort is configured or shaped by other experiences, senses, histories and things that do not directly influence the buildings climatic envelope. None of the papers considered the ways in which engagements with weather and other places (e.g., the

office, the park, public transport and the garden) influenced the ways in which comfort was experienced and conceptualised. Some of my observations were reiterated in the concluding roundtable discussion with Karen Bickerstaff, Dale Southerton and Stefan Bouzarovski. Bickerstaff and Bouzarovski both observed among other matters that there was too much focus on thermal comfort rather than comfort more generally and social practice theory at the expense of other theoretical resources such as literatures on embodiment, the home and home-making.

Pilot interviews conducted in August 2012 (Section 3.4.2) were informed by a growing unease with my initial empirical and conceptual focus. Correspondingly, these interviews were used as a way of exploring how people generally talked about and reflected on embodied and sensuous experiences of comfort and discomfort in a range of everyday spaces both in and around home and work. As a consequence of these pilot interviews as well as my reading of the literature and experiences at the RGS-IBG, I decided to shift my focus towards developing a relational understanding of comfort. The aim in doing so was to be attentive to the multiple forms of comfort and how it is embodied, materialised and negotiated through particular practices as people move between the different time-spaces in and around home and work. The pilot interviews with New Zealand migrants highlighted how participants had adapted and become attuned to taken for granted aspects of their previous lives. For example, a number of participants discussed the challenges of getting used to life without a car, travelling on public transport and spending more time outside in the 'miserable' or 'horrible' London weather. This encouraged me to proceed with conducting the research with both locals and migrants but also to explore the relationship between notions of comfort, people's everyday journeys and engagements with the weather. Moreover, it prompted me to centre the study on individuals who travelled to work most days of the week as they typically inhabit multiple time-spaces each day.

This shift in empirical focus and initial fieldwork in London prompted further reflection on and modifications to my methodological and conceptual approaches in two ways. First, I started to engage with the mobilities literature which encouraged me to further reflect on the possibility of employing 'mobile methods' and technologies (Section 3.3.1) as another way of generating insights into how the

configuration of technologies, transport infrastructures and urban forms shape social and cultural life on the move (Cresswell, 2006; Sheller & Urry, 2006). Correspondingly, I decided to adopt a more 'ethnographic' and 'grounded' approach which drew upon a range of methodological 'tools' (Crang & Cook, 2007, p. 14) or modes of 'engagement' (Merriman, 2014, p. 179) including semi-structured interviews, go-alongs, participant observation (Section 3.5) and ongoing systematic analysis (Section 3.6).

Second, a number of interesting themes began emerging out of the initial interviews conducted during the first period of fieldwork in London (Section 3.5.1). The ways in which participants talked about their journeys or their commutes were often not easily encapsulated just by the notion of comfort. Many participants talked about various adjustments they had to make including becoming more organised, an increased preparedness for walking and being outside and the adoption of particular approaches for dealing with the close proximity of others on especially the tube. In attempting to make sense of these empirical materials, I felt that social practice theory did not provide me with the conceptual tools and resources to sufficiently understand the concepts and interpretations emerging out of my grounded analysis. In particular, I found that the notion of individuals as simply 'carriers or practices' did not seem to capture the ways in which individuals modified and reconfigured their practices through reflection and experimentation and how this, along with an increasing familiarity with these everyday spaces, seemed to alter their individual meanings and subjectivities.

It was during this time that I had become increasingly interested in the re-emerging interest in habit in geography (Bissell, 2011, 2013; Middleton, 2011; Schwanen et al., 2012) and the humanities and social sciences more generally (Bennett et al., 2013; Carlisle, 2010, 2014; Crossley, 2013; Sinclair, 2011). Much of this work was inspired by the English translation of Felix Ravaisson's (2008 [1838]) *Of Habit*. A few scholars also drew attention to John Dewey's pragmatist writings which like Ravaisson emphasised the importance of understanding habits as a disposition or a capacity which is a source of stability and change, an active tendency or a force, constantly emerging out of particular social or physical environments and fundamental the self or subjectivity (see Crossley, 2013; Schwanen et al., 2012). This

stimulated me to read both Ravaisson (2008 [1838]) and Dewey (1922a). Although both authors stressed the relational, more-than-individual and dynamic nature of habit, I was particularly drawn to Dewey's work as it provided a more contextualised and detailed analysis of how habits, meanings and thought emerge in particular social and physical settings and their implication for social and moral life.

Subsequently, I adopted a Deweyan-inspired approach to understanding habit which was later expanded to encompass his other writings especially on experience (1929a) and logic (1938) as these assisted me in further interpreting and understanding my empirical materials. Moreover, this new conceptual framework combined with my empirical materials encouraged me to direct my empirical focus towards understanding the environments and phases of action associated with everyday mobility rather than just simply comfort, although this remained a guiding concern. Correspondingly I decided to retain Auckland and London as my fieldwork sites as Section 3.5 notes for a number of reasons which still allowed me to understand the role that social and physical environments play in conditioning individual action and thought.

Overall, despite the empirical and conceptual differences between the Commonwealth Scholarship and first year proposals and the thesis, at least five similarities can still be identified between the earlier and later manifestations of the project, all of which informed the design of the research. First, they are all explicitly concerned with examining existing approaches to theorising, understanding and governing action especially in relation to debates around behaviour change, sustainability and climate change. Second, the empirical focus of the research is on understanding how resources (e.g., oil, electricity, wood, coal, embodied energy) are routinely consumed and used as part of habitual and mundane everyday activities. Third, in the process they attempt to demonstrate how such an empirical and conceptual focus can help to move beyond the limitations especially of individualistic approaches to behaviour change. Fourth, each of the different manifestations attempt to generate insights into how contemporary practices or habits might inform the transition to more sustainable and low carbon lifestyles. Fifth, following Shove et al. (2012) it was noted in Section 2.5 that there are a number of overlaps between the ways in which social practice theory and Deweyan pragmatism

understand the environments and phases of action. In particular, both approaches recognise that action is variously enabled, constrained, permitted and rendered possible by social norms, cultural conventions, political institutions, rules and regulations, existing infrastructures and systems of provision. The next section examines the difficulties associated with researching habits, routines and mundane practices and the different approaches researchers have used to address these challenges.

3.3 Researching everyday practices and movements

Scholars have studied a range of habitual, routine and mundane everyday practices using more 'traditional' or 'conventional' methods such as interviews, focus groups, questionnaires and participant observation. Other scholars have stressed the need to develop 'non-representational' and 'mobile' methods in order to better capture the fleeting, multiple, embodied and multi-sensory nature of everyday life. Section 3.3.1 briefly considers both sides of these debates before outlining how methods are approached in the context of the thesis (Section 3.3.2).

3.3.1 Everyday practices, movements and methodological appropriateness

The potential for talk-based methods such as interviews and focus groups to provide insights into the complexities, time-spaces and flows of everyday life is increasingly being questioned (Büscher & Urry, 2009; Latham, 2003, 2010; Macpherson, 2010; Pink, 2005, 2011; Sheller & Urry, 2006; Spinney, 2009). For example, Latham (2003; 2010, p. 90) asserts it is unreasonable to 'expect people to be able to reliably remember the frequency of activities that they carry out routinely on a day-to-day basis, and often without much thought' (although see Southerton, 2003; Southerton & Tomlinson, 2005). Alongside others (Pink, 2005; Spinney, 2009) he argues that research participants will generally struggle to say anything about everyday events that are often 'fleeting and mundane, or just plain routine and lacking in any obvious social consequence' (Latham, 2010, p. 90). Moreover, such methods may not apprehend the symbolic and cultural conventions of a practice (Shove, 2003), the context in which it is performed and experienced (Spinney, 2009) and the sensory,

emotional and embodied nature of action (Macpherson, 2010; Pink, 2005, 2011; Spinney, 2009).

In their place, these scholars have emphasised the need to supplement or often replace these 'conventional' and 'representational' methods with 'non-representational' and 'mobile' methods. For instance, many mobilities scholars emphasis '[t]he imperative to move, be and see *with*' (Merriman, 2014, p. 174) subjects:

> [A]s a consequence of allowing themselves to move with and to be moved by subjects, researchers can become tuned into the social organisation of 'moves'. … By immersing themselves in the fleeting, multi-sensory, distributed, mobile and multiple, yet local, practical and ordered making of social and material realities, researchers come to understand movement not as only governed by rules but as methodologically generative (Büscher et al., 2010, p. 7).

This imperative has seen scholars draw upon 'video, ethnographic and participative methods, 'go-alongs', and a host of other techniques in an attempt to apprehend the mobile practices of cyclists, walkers, ferry passengers, drivers and other mobile subjects' (Anderson, 2004; Laurier, 2004; Laurier et al., 2012; Laurier et al., 2008; Merriman, 2014, p. 169; Middleton, 2011; Spinney, 2009, 2011; Vannini, 2012; Watts, 2008). Moreover, it is increasingly argued by mobilities scholars that these new techniques and methods as well as theoretical stances 'are necessary to allow academics to apprehend' the 'practices and sensations of human embodied movement' which as 'fleeting occurrences' often 'elude representation' (Büscher et al., 2010; Fincham et al., 2010; Merriman, 2014, p. 182; Spinney, 2009, 2011).

These claims and their associated assumptions have been questioned in at least two ways. First, some emphasise the continuing appropriateness of using talk-based methods such as interviews and focus groups in order to understand everyday practices (Bissell, 2014a; Hegger et al., 2011; Hitchings, 2012). Hitchings (2012) uses examples from his interview-based studies of office workers use of nearby urban parks and older people's approaches to staying warm during winter to demonstrate that people are capable of talking about rather mundane actions which, to some extent, may be performed without conscious consideration. Similarly, Hegger et al. (2011, pp. 52-53) note how focus groups helped them to understand the

ways in which ‘meanings and rationalities’ associated with water-based consumption practices in the Netherlands.

Other scholars have questioned the claims made about and assumptions often underpinning non-representational and mobile methods (Dewsbury, 2010; Merriman, 2014). In particular, it is often argued that such methods enable the researcher to observe events ‘first-hand’ allowing them to gain a ‘closeness’, immediacy and ‘proximity’ (Fincham et al., 2010, pp. 4-5) which ‘is all-too-often associated with an authentic experience that can enable the researcher to more accurately know and interpret the practices in question’ (Büscher et al., 2010; Merriman, 2014, pp. 175-176; Spinney, 2009, 2011). It is presumed ‘[v]ideo-recording technologies and participative techniques are valorised for their ability to enable the research to witness or capture the unfolding of live events and the contexts of action’ (Merriman, 2014, p. 176). Consequently, ‘such manoeuvres often appear to assume that such practices, contexts, spaces and events are singular’ which ‘can be accurately witnessed, captured, represented or portrayed’ (Dewsbury, 2010; Merriman, 2014, p. 176). As Dewsbury (2010, p. 330) asserts alongside many science and technology studies scholars (e.g., Haraway, 1991; Latour, 1993, 2005; Mol, 2002) there is, however, ‘no one world out there’ waiting to be discovered. This is a point which Dewey also emphasised in articulating how his pragmatism differed from other forms of realism (see Hildebrand, 2003, pp. 30-86):

> Neither is the distinction between monistic and dualistic realism exhaustive. There remains pluralistic realism, which is precisely the theory I have advanced. The things which are taken as meaning or intending other things are indefinitely diversified, and so are the things meant. Smoke stands for fire, and odo[u]r for a rose … and so on *ad infinium*. Things are not mental states. Hence the realism. But things are indefinitely many. Hence the pluralism (Dewey, 1922b, p. 356).

Accordingly, there is a need to acknowledge that the world is ‘multiple, open-ended’ (Merriman, 2014, pp. 176-177) and ‘more elusive than we can [research and] theorise’, as ‘the world does not add-up’ (Dewsbury et al., 2002, p. 437; Law, 2004). As a result, ‘witnessing something or engaging with someone face-to-face, on the ground, does not provide some authentic or singular way of understanding, witnessing, or knowing a subject, thing or event’ (Merriman, 2014, p. 179). Instead, as Merriman (2014, p. 179) asserts it ‘provides a particular kind of engagement that

is different from (but not superior to) other embodied practices of engagement' such as 'reading about an event' or 'watching a video recording of it'. The implication of Merriman's account is returned to at the end of Section 3.3.2 which now elaborates on how methods are approached in the thesis.

3.3.2 Facilitating habit hitches, conflicts and shocks

Dewey's (1922a, 1929a) account of the relationship between habit and thought is particularly insightful in the context of understanding how research practices can help facilitate moments of reflection on habit. As noted in Section 2.6.1, for the most part Dewey asserts that our habits are able to function successfully. Even in 'novel and precarious circumstances' they are able to direct 'our conduct in a way that avoids potential hazards' if there is 'some aspect of the situation that enables the habit to function successfully' (Carter & Scott, 2013, p. 83). Here 'the habit is able to refilter the novel situation to make it resemble some other, more familiar, one' (Carter & Scott, 2013, p. 83). This is not always the case as in some instances 'habits prove inadequate to the perpetual task of coming to terms with the environment' (Allport, 1951, p. 274) and impulse is released 'to energise deliberation' (Scheffler, 1974, p. 218). It is such a 'hitch in [the] workings [of a habit] which occasions emotion and provokes thought' (Dewey, 1922a, p. 178). Habits hitches or what he also terms as conflicts or shocks for Dewey play an important role in action giving rise to reflection, observation, memory and ingenuity:

> Conflict is the gladfly of thought. It stirs us to observation and memory. It instigates invention. It *shocks* us out of sheep-like passivity, and sets us at noting and contriving. Not that it is always effects this result; but that conflict is a *sine qua non* of reflection and ingenuity (Dewey, 1922a, p. 300).

These hitches, conflicts or shock arise because some aspect of the environing conditions becomes problematic for our existing habits. Thinking, for Dewey, 'would not exist … in a world which presented no troubles' (Dewey, 1916, p. 19) because 'we could get by with our habits and our traditional ways of action' (Campbell, 1995, p. 56). In this way thinking is also like any other habit in that it is an activity which emerges in our bodies and brains in relation to our immediate surroundings. Thought comes from 'the suggestion of the environment' (Dewey, 1922a, p. 314) and is thus 'something that happens to us' (1910, p. 34). 'It thinks', he asserts, 'is a truer

psychological statement than 'I think'. Thoughts sprout and vegetate; ideas proliferate' (Dewey, 1922a, p. 314).

Returning to the implication of Merriman's (2014) argument, different methods such as interviews, go-alongs, auto-ethnography and participant observation can be understood as providing the researcher with different kinds of engagement with particular subjects, materialities and events. A researcher's line of questioning or their presence on their commute can force participants to 'stop and think' and observe, recollect and reflect on their lives, habits and experiences (Dewey, 1929a, p. 314). Participant's responses or actions can equally prompt new lines of enquiry for researchers. More importantly, other aspects of the environing conditions such as the actions of other commuters or particular objects, technologies or infrastructures can also trigger thought for researchers and participants alike (Anderson, 2004; Anderson & Jones, 2009; Elwood & Martin, 2000; Sin, 2003). In the context of my own research practices, I came to adopt a broadly ethnographic and grounded research methodology which used a range of methodological tools or modes of engagement as the following sections elaborate including semi-structured interviews, go-alongs, participant observation and ongoing systematic analysis. Moreover, I understood the research process and my empirical materials as being co-produced by researchers, participants and their social and physical contexts in which the research unfolded.

3.4 Pilot research: Understanding everyday practices of comfort

This section provides a brief overview of pilot research undertaken in Christchurch, New Zealand (Section 3.4.1) and London, UK (Section 3.4.2) and what implications it had for the thesis.

3.4.1 Research diaries: Christchurch, New Zealand

Research diaries were piloted as a means of examining habitual and everyday activities during the first year of my PhD in my home town of Christchurch, New Zealand. Five participants agreed to keep a written diary over the course of one week (25-31 January 2011) about the ways in which they negotiated their everyday comfort over this period in different time-spaces. The intention was that the diary

would provide participants with an opportunity to 'mediate on - or at least be more actively aware of – the routine and ordinary [nature] of their [practices], whilst also providing a detailed time-space account of [these practices]' (Latham, 2003, p. 2002). The original aim was to adopt the 'diary, diary-interview method' (DDIM) (Zimmerman & Wieder, 1977), where the diary forms the basis of an interview with the diarist. As my visit significantly overlapped with summer holidays in New Zealand it was not possible to complete the follow-up interviews. Short discussions were held, however, with each of the participants about their experience of the process including how easy the diaries had been to complete and the amount of time it had taken.

The quality of the diary entries and relevance of the materials generated was largely dependent on the respondent completing the diary. For example, two participants only made very brief entries each day whereas the other three participants wrote full accounts every day. The participants who included more detailed accounts tended to be more reflective about the various ways they tried to manage their thermal comfort and how such attempts were shaped by their surrounding environments and weather conditions. Reflecting this, two of these participants, Kevin and Catherine, made observations that suggested the process of completing the diary had made them more aware of their everyday thermal comfort practices. Kevin observed 'I'm astonished at how much time I spend in air-conditioned environments'. Catherine wrote about her changing understanding of the notion of comfort:

> Developing a new appreciation of 'comfortable' as [the] week goes by. Have become aware of how difficult – partly because of circumstances this week – [it is] to be comfortable in environments [in] which I had no control. E.g., unable to open windows or move up air-con [at the hospital]. [This] has made me more mindful of the need to wear removable clothing layers.

In contrast, Robert and Scott who both only provided brief accounts suggested they were already aware of their existing practices and that these did not change much during the summer. In Scott's case he commented that, for the most part, he controls his comfort through his clothing:

> My activities are governed by what I have to do and where I have to be. At this time of the year, the only usual requirement is to adjust clothing layers to deal with low amplitude differences in temperature. Buildings I work in have external

> environmental controls (i.e., I cannot change them!) so clothing adjustments [are] the only recourse.

Overall, this pilot revealed both the potential benefits and limitations of using diaries. It reaffirmed that diaries were one means through which participants could reflect on, and in some instances, become more conscious of routine and everyday practices. This appeared to be particularly the case for Kevin and Catherine who both dedicated more time and energy into completing their entries. Despite their shorter entries, Robert and Scott's accounts still revealed some useful insights into how comfort is in part conditioned and negotiated in relation to the built environment. The main limitations highlighted were that the type of materials generated was much more dependent on the commitment, interest and assumptions of research participants. The three research participants who completed full entries over the seven days all commented that although being an enjoyable process, it was particularly time consuming. An additional problem was the challenge of interpreting and reading participants' entries but this could be to some extent addressed through a follow-up interview (Latham, 2003; Zimmerman & Wieder, 1977). I eventually decided not to use diaries as I was concerned about the potential time involved in introducing participants to the process and following up the diaries with interviews and the demands it places on participants.

3.4.2 Pilot interviews: London, United Kingdom

As Section 3.2.3 outlined the pilot interviews were informed by a growing unease with empirical and conceptual focus of the thesis. The purpose of my pilot interviews was subsequently three-fold. First, to explore the ways in which people generally talked about and reflected on (dis)comfort in a range of everyday spaces both in and around home and work. Second, to gain some insight into the logistical and practical challenges that conducting fieldwork with both local and migrant research participants in London might entail. In particular, I wanted to get some sense of how easy it would be to gain access to research participants through different networks, online forums and personal contacts. Third, building on my research diary pilot, I wanted to understand how suitable semi-structured qualitative interviews might be at helping me to gain insights into the embodied and sensuous natures of people's everyday practices and how they are shaped by different social and physical

environments. In effect I was trying to reflect on Hitchings (2012) assertion that people can talk about their practices.

Thirteen semi-structured interviews were carried out around London between 13 and 20 August 2012. In total, seven 'local' professionals, one retiree and five New Zealand migrants were interviewed. The interviews were structured around four lines of enquiry. They began by briefly reflecting on what it was like to live in London as a way exploring how the city influenced people's conceptions of everyday life and (dis)comfort. The questions then focused on the interviewee's home as a way of examining the extent to which comfort emerged as important in this context without promoting them. Comfort was the next area of enquiry and the ways in which people interpreted the notion, how it had changed over time, the role it played in their everyday life and the spaces of (dis)comfort. The interview concluded with some questions associated with the nature and acceptability of contemporary lifestyles. I also asked the New Zealand migrants to reflect on how living in London had changed their lifestyle.

People were capable of talking about a range of general and specific topics despite the fact as Jeremy observed they did not necessarily reflect on these matters very often:

> [The questions] were very good and interesting […]. A lot of the time you never think about [these things]. I suppose I've never considered the differences between a comfortable life and the good life. Things like that. I think the questions were good.

A significant argument often levelled against using only interviews is that individuals may find it difficult or challenging to talk about what to most people might be ordinarily routine, mundane and everyday occurrences (Latham, 2003, 2010). Initially reading over the pilot interview transcripts, I was struck by how general many responses were to my various questions. What appeared to be lacking were more routine and everyday accounts of life. There were a few examples scattered throughout the transcripts including Jeremy and Jane's accounts which both also revealed the interconnections between home, commuting and work:

> Jeremy […] I work long hours in a relatively stressful job and the commute as well. My commute is the best part of an hour. So you get on the tube at 7 o'clock or whatever. You're standing up on the train. There [are]

people barging into you. It is hot and it's noisy. Then you've got twelve hours of work. Where it is quite stressful with loads of deadlines and then you've got another long tube journey home. So all that time you've got stress on your mind. No time to sit and think or read a book or whatever. So for me when you get home it is about switching off […] and relaxing.

Jane You get to a certain point in the evening where I like to be just relaxed see. Get everything done and just sit. It depends if I've got an evening meeting I'm ok with that. But if I was at home it would be go in. Have dinner. Clear up. And then that is when I want to chill. That's so when. When the dishes are done and everything is finished.

Upon further inspection I observed that the absence of these routine and everyday occurrences largely reflected my questioning. In instances where I asked more specific questions most participants responded accordingly. For instance, Victoria, a New Zealand migrant, observed how she had gradually come to terms with the London lifestyle including commuting. When asked to elaborate further she discussed how she had 'got used to' her long commute:

> I get on a train to Vauxhall and then I get on a tube up to Highbury and Islington and then I got on the Overground. It is about an hour-fifteen. It actually goes really fast which is surprising. I used to hate commuting. So if you go back to just over two years ago. I used to always live just within walking distance in Devon and London I used to live in walking distance. And then I sort of moved and then I had to start commuting. And I didn't enjoy it but. In the new flat it just goes quite fast. So I think I'm finally just getting used to it really.

Such responses demonstrated the importance of reflecting on the types of questions I was asking and the ways in which I was asking them. Given that the pilot interviews were designed to be exploratory, however, I did not spend as much time focusing on specific practices. Following Hitchings (2012) recommendations I felt there was also scope to present participants with hypothetical situations or other people's practices as a way of encouraging them to deliberate on their own rationales. The pilot thus indicated that interviews again provided a useful mode for engaging with the ways in which people negotiated comfort in a range of different time-spaces. In the course of travelling to and from the interviews on different Underground and Overground lines and at different times of the day, I began to gain a further appreciation of how the

rhythms and materialities of different lines could contribute to their experiences of these spaces and how such experiences could change over time. Overall, as noted in Section 3.2.3, the pilot interviews encouraged me to start thinking about other modes of engaging with people's practices, understanding comfort in multiple forms and the interconnections between home, the commute and work.

3.5 Modes of engagement with everyday mobilities

Despite the empirical and conceptual shift of the thesis, Auckland and London were retained as the fieldwork sites for at least three reasons. First, London is one of the most popular destinations for temporary (e.g., working holiday visa) (Wilson et al., 2009a, 2009b) or permanent New Zealand migrants in the UK (ONS, 2011). Correspondingly, the highest numbers of British born migrants in New Zealand live in Auckland (Statistics New Zealand, 2013). Second, Auckland and London are sites of contrasting transport infrastructures, car dependence and public transport use (see Chapter 4; Table 3.2). In comparison, the car has played a less significant role in everyday life in London, reflecting the cities complex and extensive public transport system. Third, transport remains a concern in both cities and there are efforts to encourage more walking and cycling. Auckland and London suffer from significant road congestion and many of the problems of excessive car use (e.g., air pollution; greenhouse gas emissions; motor vehicle related-deaths) (Auckland Council, 2014; Pooley et al., 2005). Overcrowding is also a considerable problem in London on the underground, local and regional trains and buses. The remaining subsections elaborate upon the different methodological tools or modes of engagement used to examine everyday mobility in both cities.

3.5.1 Qualitative interviews

This section provides details about the semi-structured interviews conducted as part of the PhD fieldwork. More specifically, it describes how participants were recruited, the number of people interviewed, the settings for the interviews and how they were designed and structured.

Table 3.2. Comparison of mode share of journeys to work in Auckland, New Zealand and London, United Kingdom

Mode share of journeys	**Auckland, NZ (MOT, 2014)**	**London, UK (ONS, 2013)**
Private vehicles (car/motorcycle)	88%	38%
Public Transport	8%	36%
Walking	3%	24%
Cycling	1%	2%

Participant recruitment

In an effort to gain access to a range of participants, a number of different channels were used for recruitment. These included online advertisements on professional, interest and expatriate group pages on Facebook and LinkedIn, directly contacting companies and schools and asking them to place an advertisement via email or their online and offline noticeboards, making use of existing contacts and snowballing. A website was set up to help facilitate the process which included details about participant involvement, project procedures, the intended outcomes of the research and a form through which people could register their interest (see Appendix 1).

In total, 95 interviews were conducted as part of the fieldwork between October 2012 and September 2013 (see Table 3.3). Fifty four interviews were conducted in London and 41 in Auckland. Initial advertisements on a New Zealand expatriate Facebook group in London attracted a good deal of interest (n=20). I chose to interview all of these individuals rather than selecting them on the basis of particular socio-demographic or mobility characteristics. This was mainly because I felt it would provide me with a good opportunity to recruit other participants through these contacts. After these initial interviews I was more selective about whom I interviewed in both London and Auckland. In particular, as I was interested in how people's habits associated with their commutes changed with different modes of mobility and over time, I focused on obtaining a diverse sample of local and migrant participants in regards to mobility (car; bus; train; underground; walk; cycle), age (18-29; 30-39; 40-49; 50-59; 60+) and the amount of time they had been living in the city (≤2 years; 2-5 years; >5 years). The characteristics of those interviewed are summarised in Tables 3.4 and 3.5.

Table 3.3. Summary of the total number of interviews conducted as part of the PhD and the time of year and season during which they were conducted.

Location	**Season**	**Dates**	**Interviews**
London	Autumn	15 Oct - 3 Nov 2012	31
	Autumn/Winter	19 Nov - 14 Dec 2012	13
	Winter	14 Jan - 2 Feb 2013	8
	Summer	29 Jul - 1 Sept 2013	2
	Subtotal		**54**
Auckland	Summer/Autumn	19 Feb - 27 Mar 2013	16
	Autumn	1 - 29 Apr 2013	14
	Autumn	7 - 17 May 2013	3
	Autumn/Winter	28 May - 29 Jun 2013	8
	Subtotal		**41**
Total			**95**

Table 3.4. An overview of the relationship between gender and interview participants' main mode/s of travel to and from work in each city. As people often travelled by multiple modes (e.g., bus, train and underground), especially in London, the totals are greater than the number of people interviewed.

Location	**Gender**	**Bicycle**	**Bus**	**Drive/ Passenger**	**Ferry**
Auckland	Female	3	4	11	0
	Male	6	2	6	2
	Sub total	**9**	**6**	**17**	**2**
London	Female	7	4	1	0
	Male	2	4	4	0
	Sub total	**9**	**8**	**5**	**0**
Total		**18**	**14**	**22**	**2**

Location	**Gender**	**Train**	**Tram**	**Underground**	**Walking**
Auckland	Female	1	N/A	N/A	9
	Male	2	N/A	N/A	6
	Sub total	**3**	**N/A**	**N/A**	**15**
London	Female	15	1	12	28
	Male	4	0	9	13
	Sub total	**19**	**1**	**21**	**41**
Total		**22**	**1**	**21**	**56**

Table 3.5. A breakdown of the number of people interviewed in each city by their country of birth and age.

Location	Country of birth	Age					
		18-29	30-39	40-49	50-59	60+	Total
Auckland	New Zealand	2	10	1	6	2	21
	United Kingdom	2	4	5	3	1	15
	Other Country	1	4	0	0	0	5
	Subtotal	**5**	**18**	**6**	**9**	**3**	**41**
London	New Zealand	21	14	1	2	0	38
	United Kingdom	2	4	1	3	2	12
	Other Country	0	4	0	0	0	4
	Subtotal	**23**	**22**	**2**	**5**	**2**	**54**
Total		**28**	**40**	**8**	**14**	**5**	**95**

Although the sample was not designed to be representative, there are at least four matters of note. First, more women were interviewed than men in both Auckland and London. Second, in the London sample people travelling by private car are underrepresented compared to 2011 Census data on method of travel to work (ONS, 2013). Third, most of the people interviewed were born either in New Zealand (Auckland: 51%; London: 70%) or the United Kingdom (Auckland: 37%; London: 22%). Fourth, the majority of people interviewed were either between the ages of 18-29 (29%) or 30-39 (42%). The overrepresentation of woman and New Zealand born participants in my London sample is partly attributable to the fact that many of the people who initially volunteered to participate were reached via an advert placed on a New Zealand Facebook group were females. Correspondingly, the overrepresentation of people in the 18-29 and 30-39 age groups in London in part reflects that most of the New Zealanders interviewed were on or originally migrated to London on two-year youth mobility working visas which can only be applied for at the age of 30 or younger.

The interviews were semi-structured and typically lasted around one hour. The vast majority of interviews (93%) were conducted one-on-one with interviewees. There

were three instances where this was not the case. On one occasion, a concurrent interview with three flatmates was conducted, and on two others, couples from the same household were interviewed together. The interviews were arranged and carried out at times and in locations best suited for participants. Most of the interviews in London were conducted in public (bars/pubs (n=23, 43%); cafes (n=19, 35%)) rather than private settings (home (n=4, 7%); work (n=8, 15%)). In Auckland, a similar proportion of the interviews took place in public (bars/pubs (n=6, 15%); cafes (n=12, 29%); beach (n=1, 2%)) and private spaces (homes (n=9, 22%); work (n=13, 32%)). This discrepancy in part reflects the fact it is more common to meet people 'out' in London on the way home from work (in part due to transport logistics and distances travelled), the small size or lack of communal space in apartments/houses and the difficulties or challenges of getting into workplaces (i.e., security). Additionally, in Auckland more participants were contacted through existing networks and so were perhaps less concerned about meeting someone they had not met before either at home or at work.

Interview design and structure

In developing the interview schedule I was conscious of the challenges of trying to encourage people to talk about everyday activities which might seem rather inconsequential, mundane, or even perhaps dull and boring. Building on my experiences with the pilot interviews I felt it was important to thus be sensitive to the nature, order and structure of the questions. With this in mind, the interview schedule was developed around six lines of enquiry which was broadly designed to mirror a 'day in the life' of a participant (Appendix 2). The rationale for this approach was that day in the life is a familiar cultural reference in films (*One Day in the life of Ivan Denisovich* (1970), *The Hours* (2002) and *One Day* (2011)), television programmes and series (documentary (*The Osbournes* (2002-2005), Morgan Spurlock's *A Day in the Life* (2011-)) and fictional (*Coronation Street* (1960-), *Eastenders* (1985-), *Friends* (1994-2004)) and books (Virginia Woolf's (1925) *Mrs Dalloway* and James Joyce's (1922) *Ulysses*). Moreover, it provided a logical structure and progression for the interview.

The interview started with me outlining their involvement, their rights as a participant and the intended outcomes of the research. Participants were then given

an information sheet with my contact details and asked to sign a consent form. Following this, the interview commenced with a discussion of how the participant had come to live in London or Auckland and their experiences of living in the city. This then transitioned into a series of questions about the interviewee's home including how they had come to live there, and descriptions of their house, regular home-based activities and vision of the ideal home. The purpose of these initial lines of inquiry was two-fold. First, during the pilot interviews I found that the open and general nature of both sets of questions for the most part helped participants to relax and facilitate further discussion. Second, by providing an opportunity for people to reflect on the relationship between the city in which they lived and their current residence, these questions helped me to situate and contextualise later discussions.

Developing these initial lines of enquiry, the next series of questions were centred on preparing for the commute, the commute to work and the commute home. It was during this section of the interview that I tried to encourage people to talk about the various habits and routines associated with their commute. Some participants were more than happy to talk about the various intricacies of getting ready for and travelling to work. Other participants were less forthcoming and required a lot of prompting. In the course of their descriptions, most interviewees did not talk at length about showering, how they decide what to wear and how this decision is influenced by the weather. As a result I often ended up having to ask follow-up questions on these topics. As Table 3.3 highlights, the majority of the interviews in both cities were undertaken during autumn and winter and this initially influenced some people's responses to these follow-up questions. This was in part overcome by prompting people to think about different seasons during the interview and also by joining people on their commutes at different times of the year.

In earlier interviews, some participants were initially surprised about the detailed nature of the interview, especially in relation to questions about showering and getting dressed in the morning. Despite this, most people were happy to respond to my various follow-up questions even if they had found them slightly unusual or out of the ordinary. One early interview participant in particular, however, appeared to be a little unsettled by the interview process. In light of this, I tried to clearly highlight at the beginning of the interviews that followed this encounter that some of

the questions might seem rather detailed and even appear slightly strange or unusual. This addition to the preamble seemed to help overcome this problem in future interviews. In fact many interviewees enjoyed having the opportunity to discuss and reflect on their everyday routines and activities.

Comfort was the final area of enquiry. The focus here, following the pilot interview schedule, was on the ways in which people understood comfort, the function it played in their day and spaces of comfort and discomfort. During the interviews with migrants I preceded the questions on comfort by asking participants how they had found what I termed the 'British' or 'New Zealand' lifestyle. This question opened up a number of discussions around commuting, transport, the pace of life and housing. More importantly, it provided another way of revealing instances where previously taken-for-granted assumptions and habitual ways of operating had been disrupted or challenged. As a consequence, people again reiterated how they had adjusted or adapted when faced with these situations. In doing so they helped to provide me with further insight into how habits gradually form over time. Similarly, during the pilot interviews I found the questions on comfort helped people to think about the relationship between their home, the commute and work and the various ways in which they negotiate these spaces in the course of their everyday routines and activities. As a consequence, I felt they might also help me to gain insights into how 'the strains of the daily commute [might] become easier to bear' over time (Bissell, 2014b, p. 485).

In drawing the interview to a close, I thanked participants for their time and asked them if they knew of anyone else who might be interested in being involved in the study. I then explained how as part of the research I was interested in travelling with people on their commutes and asked if it might be possible for me to join them at some stage in the future. In this way, the interview served three main purposes. First, it provided a means through which gain insights into the rigidity, flexibility and contingencies in participant's everyday routines and activities and how these shape their journeys to and from work. Second, it allowed the interviewee and me to meet and get to know each other. Third, and related to the second point, it was envisioned this would allow us both to assess whether we were comfortable at the prospect of

joining each other on a go-along. I now turn my attention to how go-alongs were used to understand people's everyday commutes.

3.5.2 Go-alongs

Go-alongs involve a researcher 'accompany[ing] individual informants on their 'natural' outings, and through asking questions, listening and observing – actively explor[ing] their subject's stream of experiences and practices as the move through, and interact with, their physical and social environment' (Kusenbach, 2003, p. 463). This section will discuss the purpose that go-alongs played in generating a further understanding of participant's commuting habits and experiences.

Participant recruitment

Participants were asked at the end of the interview as to whether it would be possible to join them on their commute. Most interviewees (n=91; 96%) indicated that it would potentially be possible to do so. Not all interviewees responded, however, to a later email request and some who initially expressed an interest decided to opt out for various reasons such as concerns over the time involved, the timing of the commute (e.g., it coincided with annual leave) or other work and family commitments. Here, I was also aware that for some of my early participants they may have lost interest due to the lag between the interview and the follow-up email about commuting. Furthermore, I was concerned that the prescriptive nature of my early follow-up email, which included my ideal scenario for a go-along (see Appendix 3), may have been off-putting or discouraging for some participants. Reflecting upon these matters, I tried to contact and arrange commutes closer to the original interview and to be less prescriptive in my initial follow-up email only asking participants for additional access either when we were arranging a time to meet (usually after two or three emails), or in some instances, on the actual day of the go-along as this allowed me to better gauge the acceptability of such a request. Of the participants who agreed to let me join them, I did not end up commuting with everyone. In some instances this was because we were not able to arrange a suitable time or I felt that I had already commuted with a similar participant.

In total, 104 go-alongs were completed between November 2012 and June 2013 (see Table 3.6). Twenty one out of the 56 people (38%) interviewed in London and 29 out

of the 41 people (71%) allowed me to join them on one or more legs of their commute. I commuted with 14 of these participants (67%) in both autumn/winter and summer in London and 9 participants (31%) in Auckland. As Table 3.6 highlights, most of the go-alongs (67%) in London were only one way whereas in Auckland there were almost as many return journeys (47%) as there were one way (53%). Additionally, I travelled with 3 Auckland participants by two different modes of transport on separate days (2 by car on one occasion and train the next and 1 by bus and then bicycle). Table 3.7 documents the diversity and different modes of mobility on which I joined participants during go-alongs and their gender. Once again, the numbers of people travelling by private car are underrepresented in the London sample (ONS, 2013).

Go-along protocol

The go-alongs were arranged and carried out at times best suited for the participants who had agreed to take part. Some participants were happy for me to join them on both legs of their journey and others preferred for me to only join them in one direction. Additionally, there were at least three occasions in London because of the time of departure and the distance the participant commuted that it was not possible to join them on a morning commute. In all three instances I commuted with these participants in the evening. As eluded above, after receiving mixed responses to my early follow-up email, I would only enquire as to whether it was possible to meet people 5 to 10 minutes before they departed in my second or third email or text message confirming the day and time of the go-along. The aim and purpose of this, as I explained to participants, was to see the final stages that they went through before heading off on their commute. The additional benefit of this was that it also provided me with a buffer time if I encountered any delays on the journey to a participant's residence. It was more common for participants to agree to me seeing the final stages before their departure to work but less common on their departure going home. Similarly, people were more likely to invite me into their home rather than their workplace to talk me through the final stages of their commute either way. This was in a large part due to the fact it was often difficult to gain access to people's work places because of security measures in both cities. Additionally, it is likely some participants were not comfortable having me join them in their place of

employment for other reasons such as feeling self-conscious or embarrassed or it not being considered appropriate in light of their workplace culture or setting.

Table 3.6. Summary of the total number of commutes conducted as part of the PhD and the time of year and season during which they were conducted.

Location	**Season**	**Dates**	**One Way**	**Both Ways**	**Go-alongs[4] (No.)**	**Participants (No.)**
London	Autumn	15 Oct - 3 Nov 2012	0	0	0	0
	Autumn/Winter	19 Nov - 14 Dec 2012	2	2	6	4
	Winter	14 Jan - 2 Feb 2013	11	5	21	16
	Summer	29 Jul - 1 Sept 2013	11	5	21	16
		Subtotal	**24**	**12**	**48**	**21[5]**
Auckland	Summer/Autumn	19 Feb - 27 Mar 2013	3	6	15	9
	Autumn	1 - 29 Apr 2013	0	2	4	2
	Autumn	7 - 17 May 2013	2	5	12	7
	Autumn/Winter	28 May - 29 Jun 2013	15	5	25	18
		Subtotal	**20**	**18**	**56**	**29[7]**
		Total	**44**	**30**	**104**	**50[7]**

[4] Note this number represents the total number of go-alongs completed during this period. This is calculated by doubling the 'Both Ways' column and adding this with the 'One Way' column.

[5] Note this number represents the total number of participants joined on their commute rather than a subtotal or total of this column. This discrepancy is the result of the fact I commuted with some participants on two different occasions (i.e., autumn/winter and summer).

Table 3.7. An overview of the relationship between gender and go-along participants' main mode/s of travel to and from work in each city. As people often travelled by multiple modes (e.g., bus, train and underground), especially in London, the totals are greater than the number of people commuted with during the fieldwork.

Location	Gender	Bicycle	Bus	Drive/ Passenger	Ferry
Auckland	Female	2	3	7	0
	Male	3	3	6	0
	Sub total	**5**	**6**	**13**	**0**
London	Female	4	1	1	0
	Male	1	2	2	0
	Sub total	**5**	**3**	**3**	**0**
Total		**18**	**10**	**9**	**16**

Location	Gender	Train	Tram	Underground	Walking
Auckland	Female	2	N/A	N/A	5
	Male	2	N/A	N/A	6
	Sub total	**4**	N/A	N/A	**11**
London	Female	3	0	2	7
	Male	2	0	6	6
	Sub total	**5**	**0**	**8**	**13**
Total		**9**	**0**	**8**	**24**

3.5.3 Participant observation

Throughout the periods of fieldwork in Auckland and London I kept written and audio notes and photographs of observations I made while travelling to and from interviews and go-alongs as well as on days off. Alongside this, I endeavoured to use a range of different transport modes to get around each of the cities. The only exception was that I never drove a car in London.

3.6 Analysing the data: Listening to and observing habits and experiences

The data used for analysis were the digital voice recordings made during the interviews and on the go-alongs, written and audio notes made afterwards, ethnographic notes, and to a lesser extent, the video files recorded on the go-alongs. Data analysis was performed using Atlas.ti (2014) a qualitative data analysis (QDA) software package that had a number of features which were particularly important in the context of this project (for a discussion see Friese, 2014; Hwang, 2008). First, it is capable of handling large amounts of data in a variety of media formats including text, audio and video. Second, it provides a range of tools which helped to 'manage, extract, compare, explore and reassemble meaningful pieces from large amounts of data in creative, flexible, yet systematic ways' (Friese, 2013, p. 9).

The collection and analysis of the data followed, but was not limited to, the general procedures of the 'grounded theory' methodology (Corbin & Strauss, 1990; Glaser, 1978; Glaser & Strauss, 1967; Strauss, 1987) elaborated upon in Section 3.6.1. This methodology was considered appropriate for a number of reasons. First, although typically used as an approach to generate theory 'from the data', it also provides a systematic method for testing, elaborating and modifying existing theories (Strauss & Corbin, 1994, p. 273). In the present context this involved meticulously playing the incoming data against each of the different theoretical paradigms considered in Chapter 2, in order to determine the extent to which they were capable of explaining the environments and phases of action present in the data (cf. Strauss & Corbin, 1994). Second, it is founded on two important theoretical principles derived from pragmatism (e.g., Dewey, 1929a; Mead, 1934) and symbolic interactionism (e.g., Blumer, 1969; Hughes, 1971), both of which relate to understanding the environments and phases of action. The first is a recognition that phenomena 'continually change in response to prevailing conditions' (Corbin & Strauss, 1990, p. 419). A central feature of the approach, therefore, is incorporate change into the method through a focus on process (Corbin & Strauss, 1990). The second and associated principle is the rejection of both strict determinism and nondeterminism (Corbin & Strauss, 1990). Action is considered to be structured but not determined as individuals always retain the capacity to act and respond to the social and physical

conditions they encounter. Correspondingly, grounded theory attempts to gain an appreciation of both the 'relevant conditions' (i.e., external environments of action) and how individuals 'actively respond to those conditions, and to the consequences of their actions' (i.e., internal environments and phases of action) (Corbin & Strauss, 1990, p. 419). Third, it supports and encourages methodological diversity and innovation recognising that different modes of data collection (e.g., interviews, observations, government documents, newspapers, videos and books) can all provide important insights into the area of study (cf. Glaser & Strauss, 1967). Fourth, it provides a 'coding paradigm', as explained below, which can be systematically applied across different types of data including text, audio and video (Strauss, 1987). Fifth, following Dewey's (1938) writings on logic, it recognises that the researcher from the selection of area of study through to the collection, analysis and write up of the data plays an active rather than passive role and in the process enacts certain realities (Glaser & Strauss, 1967; Strauss, 1987).

3.6.1 Grounded theory methodology

Grounded theory 'is a *general methodology* for developing theory that is grounded in data systematically gathered and analyzed' (Strauss & Corbin, 1994, p. 273). The generation of theory and the doing of social research are accordingly considered to be 'two parts of the same process' (Glaser, 1978, p. 2) as theory is tested, modified and evolves during rather than after the research through 'the continuous interplay between analysis and data collection' (Strauss & Corbin, 1994, p. 273). Analysis is an important part of the research process itself, starting as soon as data collection begins, it 'guides the researcher to examine all of the possibly rewarding avenues toward understanding' their research questions (Corbin & Strauss, 1990, p. 419; Glaser & Strauss, 1967). This reflects the emphasis that the methodology places on interaction, 'temporality and process' which demands that the researcher is open to exploring 'each new situation to see *if* they fit, how they might fit, and how they might not fit' with their existing data, interpretations and conceptualisations (Strauss & Corbin, 1994, p. 279, original emphasis). The analysis of, and the data generated and collected during the fieldwork, can usefully be understood here as a way of continuously scrutinising whether the various concepts embedded within each of the theoretical paradigms about the environments and phases of action, proved to be

repeatedly relevant to understanding what was happening (cf. Glaser & Strauss, 1967). In this case, the everyday realities of commuting in Auckland and London.

By providing 'a way of thinking about and conceptualizing data' rather than a singular methodology, grounded theory has unsurprisingly been employed in a variety disciplines including geography (see Crang & Cook, 2007; Yeung, 1997) and modified by researchers according to the purpose and focus of, and contingencies faced during their research (Strauss & Corbin, 1994, p. 275, emphasis omitted). The application of this general methodology in the current context reflected the thesis aims and research questions, an initial theoretical sensitivity to social practice theory and later John Dewey's pragmatist writings, and other research and personal experiences which informed the inquiry (cf. Glaser, 1978; Strauss & Corbin, 1990). This ensured the data collection and analysis was sensitive to the ways in which: 1) bodily capacities, competences and skills; 2) social and cultural meanings and conventions, and 3) the materiality of objects, things, technologies and infrastructures, participate in, and may variously 'authorise, allow, afford, encourage, permit, suggest, influence, block, render possible [or] forbid', action (Latour, 2005, p. 72). Correspondingly, the project was guided by the general procedures of grounded theory which include 'the constant making of comparisons, the systematic asking of generative and concept-relating questions, theoretical sampling, systematic coding procedures' and following 'suggested guidelines for attaining conceptual … 'density', variation, and conceptual integration' (Corbin & Strauss, 1990; Glaser & Strauss, 1967; for further details see Strauss, 1987; Strauss & Corbin, 1994, pp. 274-275). The remainder of this section focuses on how the development and modification of the coding framework in Atlas.ti was informed by grounded theory's coding paradigm and notions of open, axial and selective coding (see Corbin & Strauss, 1990; Strauss, 1987).

In grounded theory, all types of data including interviews, field notes and videos are systematically and intensively collected, analysed and coded, 'often sentence by sentence, or phrase by phrase' (Strauss, 1987, p. 22). The aim of analysis is not simply to collect and order a mass of data but to organise the various ideas which have surfaced during the analysis of the data (Glaser, 1978). Strauss (1987, pp. 27-

28) argues that a 'coding paradigm' is 'central to the coding procedures' and recommends coding data in reference to:

1. the 'conditions' under which the phenomenon occurred;
2. 'interactions' among act[ants][6];
3. 'strategies and tactics' employed by the actants; and
4. 'consequences' arising from the situation.

This paradigm was incorporated into the coding framework, which was initially informed by the thesis aims and research questions and social practice theory, and developed and iteratively modified as the analysis progressed and corresponding and conflicting ideas, connections, themes and patterns emerged out of the data and an increasingly close reading of Dewey.

There are three types of basic coding in grounded theory: open, axial and selective (see Corbin & Strauss, 1990, pp. 423-424; Strauss, 1987, pp. 28-29). *Open coding* entails 'unrestricted coding of the data' (Strauss, 1987, p. 28). The aim here is to produce provisional concepts which seem to fit the data but also give rise to wide range of questions and 'equally provisional answers' that guide further inquiry (p. 28). Concepts are generated by comparing events, actions and interactions against others with the similar ones being 'grouped together to form categories and their subcategories' (Corbin & Strauss, 1990, p. 423). This also involves continually asking the 'data a set of questions' including:

> *What study are these data pertinent to?* This … remind[s] the researcher [that] the original idea of what the study was may not turn out to be that at all. […] *What category does this incident indicate?* […] *What is actually happening in the data?* … Another way to phrase … this is, [w]hat's the main story here, and why? All of these questions tend to force the generation of a core category or categories which will be at the center of the theory and its eventual write-up (Strauss, 1987, pp. 30-31).

For example, several incidents, actions and interactions initially appeared, reflecting the original focus of the thesis, which seemed to be associated with clothing and comfort. Coded as 'clothing and comfort', this was subsequently categorised into

[6] Strauss (1987) originally uses the term 'actor' but this has been altered to reflect a Deweyean and ANT-inspired understanding of non-human agency.

different properties and dimensions. These included spaces where clothing could become (un)comfortable (at home, on the tube, walking from the station, cycling to work, sitting at the desk); frequency (everyday, occasionally, infrequently); awareness of being (un)comfortable (sweat, feeling hot, feeling cold, feeling self-conscious); and strategies and tactics for avoiding, preventing or dealing with such situations (checking the weather, carrying a spare clothes, storing clothes at work, learning to not care). Open coding and 'its characteristics of making use of questioning and constant comparisons' in this way 'fractur[ed] the data' forcing 'preconceived notions and ideas' about clothing and comfort to be 'judged against the data themselves' (Corbin & Strauss, 1990, p. 423).

Axial coding is a critical part of open coding and entails the 'intense analysis' of an individual category around the 'axis' of each of the paradigm items (conditions, interactions, strategies and tactics, consequences) (Strauss, 1987, p. 32). It is through this process that subcategories are tested against the data and related to a category. During this process, additional categories are also developed and the researcher continues to search for evidence of them. This type of coding does not typically occur during the early stages of data collection and analysis. It becomes more common in the midst of longer periods of open coding before the analyst is 'committed to a core category or categories' and moves 'determinedly into selective coding' (Strauss, 1987, p. 32). Returning to the example of the category 'clothing and comfort', each time this was encountered the data was scrutinised to establish what conditions gave rise to these concerns (a hot and humid day), in what context they occurred (arriving in the foyer at work hot and sweaty), by what actions/interactions did it occur (cycling to work, encountering colleagues who had driven), and what were the consequences (had a shower when normally would not). This helps to ensure the theory is 'more conceptually dense' and to make 'the linkages more specific' with the overall intent of systematically seeking to account for the variation of the phenomena under scrutiny (Corbin & Strauss, 1990, p. 423).

Selective coding is the 'process by which all categories are unified around a central 'core' category and categories that need further explication are filled-in with descriptive detail' (Corbin & Strauss, 1990, p. 423). The 'core code becomes a guide to further theoretical sampling and data collection' with the analyst only examining

the conditions, actions, interactions and consequences that 'relate to the core category, coding for them' (Strauss, 1987, p. 32). Selective coding, in this manner, is 'different from open coding but occurs within the context developed while doing open coding' (Strauss, 1987, p. 32). Consequently, this type of analysis usually takes place later in the study and becomes 'increasingly dominant' as it is 'more self-consciously systematic than open coding' (Strauss, 1987, p. 32).

3.6.2 Audio-coding the data: Practical, sensorial and epistemological considerations

A particularly important feature of Atlas.ti was the ability to assign codes to specific segments of audio and video files (see Friese, 2013, 2014). This meant that the analysis of the audio and video data collected during fieldwork could proceed without first needing to transcribe these files. After trialling this feature during the early stages of fieldwork, the decision was made to work with the data in this way. The subsequent analysis followed the procedures described in Section 3.6.1. Instead of multiple readings of typed transcripts, however, this entailed repeatedly listening to excerpts of audio associated with particular codes. Segments of audio were only selectively transcribed, therefore, during and after the analysis if they seemed particularly 'seminal' or helped to illustrate central themes or concepts (cf. Wainwright & Russell, 2010, p. 3). This section ends with a brief discussion of the considerations and challenges associated with analysing data in this manner. To provide context for this discussion, the way Atlas.ti handles and allows a researcher to code audio files is now briefly examined.

Audio-coding in Atlas.ti[7] is similar to coding a document or video in that it requires the creation of a 'primary document' (PD) for each file (i.e., each interview, go-along or audio note). After a primary document has been created a number of tools become available including codes, memos, networks and queries. Friese (2013, 2014) gives a detailed description of these features for Atlas.ti. Codes are created by the user[8] and assigned to parts of an audio or video recording and sections of a written document.

[7] Others have discussed the practicalities of using alternative software packages such as Nvivo (Wainwright & Russell, 2010), Transana and DRS (Silver & Patashnick, 2011).

[8] Atlas.ti also has an auto-coding function but this was not utilised in this project (see Friese, 2013, 2014).

An imported audio file, as Figure 3.1 highlights, is displayed as an audio waveform which can be listened to and segmented into audio-excerpts or 'quotations' (Friese, 2014, p. 101). Each of these quotations is assigned a timespan to which different codes and comments (a description of the quotation) can be assigned. Once created it is then possible to re-listen to the quotations coded under each code and as the analysis progresses add to, change, collapse or delete codes as required.

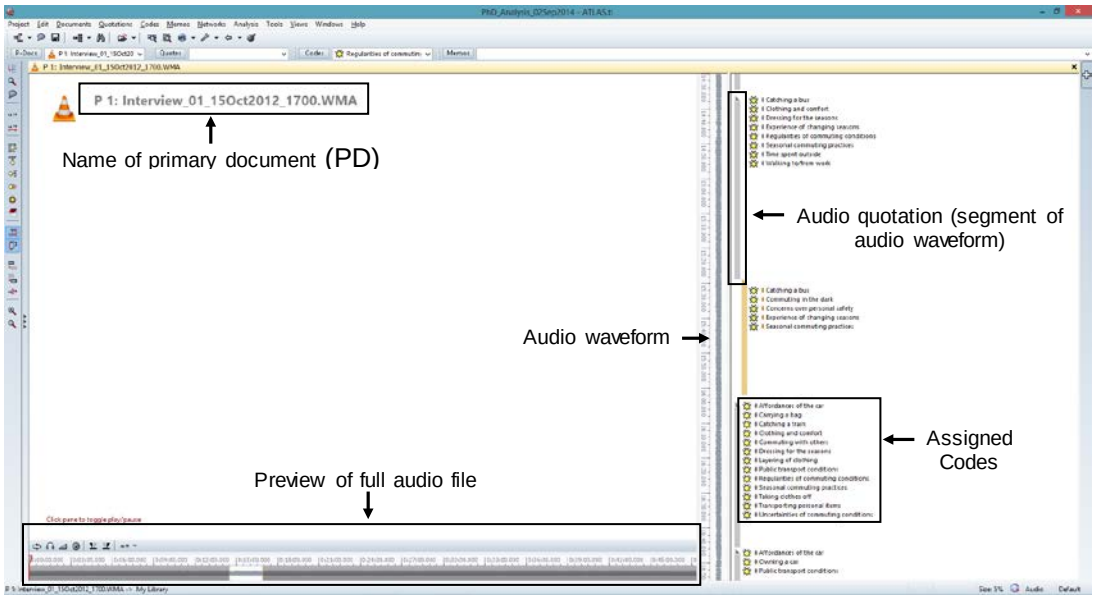

Figure 3.1. Example of an audio-excerpt or 'quotation' coded in Atlas.ti during the data analysis.

The practical, sensorial and epistemological considerations of audio coding data have received some attention (see Evers, 2011; Markle et al., 2011; Silver & Patashnick, 2011; Wainwright & Russell, 2010). Many suggest that the features of different QDA software packages allow audio to be worked with in equally systematic and rigorous ways to the more traditional typed transcript (Markle et al., 2011; Wainwright & Russell, 2010). Directly coding the audio, as discussed above, significantly reduces the amount of time (and cost) of transcribing the audio files (Markle et al., 2011). These gains are not, however, necessarily easily realised. Researchers face a number of practical challenges in audio-coding including determining how to most effectively use the features of QDA programmes, overcoming 'our habituation with texts' and in some instances a lack of programme functionality (Evers, 2011; Wainwright & Russell, 2010, p. 3). Wainwright and Russell (2010, p. 3) observe initially audio data may 'feel less tangible' than a transcript because it can seem 'harder to review' and 'locate particular utterances'. A

potential pitfall in this context is that the researcher may end up 'half-transcribing' rather than coding what they listen to, overcoming this requires a good deal of practice (Wainwright & Russell, 2010, p. 3). Following Wainwright and Russell's advice an attempt was to make brief annotations so that one was 'drawn back to listening to excerpts as opposed to reading a summary of what was said' (p. 3). For example, and following the grounded theory coding paradigm, an effort was made to code and produce comments by focusing on conditions, interactions, strategies and tactics and consequences rather than writing out everything that was said (e.g., 'participant describing the conditions on the tube'). Passages such as these were subsequently coded as 'public transport conditions' across every interview or go-along. This meant that each excerpt under that code was listened to during the analysis.

Elsewhere, Wainwright and Russell (2010, p. 3) suggest it is more straightforward to delineate a transcript than an audio-file partly because it is easier to 'draw boundaries' while moving your 'eyes back and forth across a printed page' than it is to 'stop and rewind' a recording in most QDA software packages. During the analysis for this thesis, audio-excerpts were typically demarcated by obvious transitions during an interview or go-along (e.g., the beginning and end of a conversation, a change in the topic of discussion, getting on or off public transport, silence). Evers (2011) makes a similar point about the limitations of existing QDA packages. She argues that at present it is not possible to slow down audio and video files while directly coding. This means it is not possible 'to listen to and reflect upon what is being said before deciding on how to code it' (Evers, 2011, p. 25). This limitation was partly overcome during the analysis by creating provisional codes in a separate word document simultaneously as audio-excerpts or quotations were demarcated in Atlas.ti.

Despite these practical challenges, there have been epistemological discussions in relation to 'accuracy' and authenticity of audio and video coding (Evers, 2011; Markle et al., 2011; Wainwright & Russell, 2010). Markle et al. (2011) discuss the various challenges associated with audio transcription. They argue that much of the contextual and additional 'information' associated with spoken data is lost through transcription. Turning 'audio data into text data', for example, 'sacrifices elements of

natural speech such as intonation, pause, juncture, pitch, stress, and register that convey added information by helping to place spoken words inside a greater contextual reference that increases insights and understanding beyond the words' (Markle et al., 2011, p. 5). They assert conversation analysis (see Sacks, 1992), which has developed symbols for representing these 'missing pieces of meaning', are not 'perfect representations' in that they cannot 'accurately' portray for instance 'the awkwardness of a 3-second silence' (p. 5). In contrast, the ability to 'move swiftly between codes and audio [and video] excerpts' helps to keep the researcher 'sensorially' closer to the 'original data' (Markle et al., 2011; Wainwright & Russell, 2010, p. 3). Markle et al. (2011) illustrate this point by comparing a typical conversation analysis of students developing an animation film with a video of the event. They argue conservation analysis helps to 'describe the interactive nature of this event' but fails to 'communicate students' excitement for various ideas' (p. 7). These include 'subtle nonverbal' suggestions such as 'smiling, nodding one's head, and showing excitement in one's eyes, along with laughter' which might have been sufficient to encourage or alternatively discourage certain lines of thought (p. 7). In making these observations they recognise that both approaches are subject to personal bias as the recording and analyse of the data is influence by who captures and analyses it. Although audio and visual data remain only 'approximation[s]', therefore, they contend the researcher by directly coding these files gathers 'more sensory information' about 'the originally researched subject' meaning they get 'closer to the original than other sources' (p. 12).

Wainwright and Russell (2010) are less definitive. They observe that on one hand a written transcript may facilitate a 'certain detachment' which can be important during the analytical process (p. 3). Meanwhile analysing an interview as 'spoken conversation' rather than text could potentially offer 'analytical benefits' in the respect of 'remaining in-context and respecting coherence and narrative flow' thus potentially strengthening the researchers 'interpretation and analysis' (p. 4). Coding the audio in this manner allows the researcher to attend to 'utterances, silences, emotions and the interactive dialectic between interviewer and interviewee in ways that are difficult when reading even detailed transcriptions' (p. 3). Equally, returning to an interview transcript they suggest can elicit 'sensorial memory' by taking the interviewer back to the time and place of the interview (p. 3). The extent to which

such memories are, however, ‘as effective as hearing the recorded voices all over again while engaged in analytical reflection rather than transcription or transcript checking’ is less clear’ (p. 3). In concluding, Wainwright and Russell (2010, p. 4), rather than taking a definitive position on audio-coding observe that such features provide researchers with ‘opportunities to engage analytically with their data in new and exciting ways and the opportunity to reconsider and challenge the taken-for-granted necessity of transcription’. More importantly, and reflecting the position taken in this thesis, it encourages researchers to reflect on how ‘the mode of engagement with data may affect the ways in which it is assimilated and analysed’ (p. 4).

3.7 Reflections on the limitations of the thesis

Reflecting some of the conceptual and methodological challenges that have arisen during the research and the limits to what can be achieved during the time-frame of a PhD, it is recognised that there are a number of limitations in the thesis. First, the decision towards the end of the first year to change the focus of the thesis meant that the initial formulation and early stages of the PhD fieldwork did not benefit from a more sustained engagement with the mobilities literature particularly in relation to mobile methods. In light of existing debates over the limits of using qualitative interviews to research habitual and mundane practices, a range of different methods were considered and research diaries and interviews were piloted before the fieldwork commenced. Reading around these debates did include some engagement with the literature on mobile methods but given the original focus was primarily on the home this meant that the challenges of conducting research on the move and with differently mobile participants was not a guiding concern. Inadvertently, the decision to conduct interviews prior to the go-alongs and to interview all of those who responded to initial Facebook advertisements (Sections 3.5.1) provided some additional time to engage with the literature on mobile methods and to reflect on its implications for the go-along protocol. A more detailed engagement in the lead up to the fieldwork would have perhaps encouraged more critical reflection on the challenges and opportunities associated with researching mobility practices, events and contexts.

Second, and relatedly, the go-alongs would have benefitted from a longer period of pilot research. While it is inevitable that one's research approach evolves over time, the challenges of conducting research with differently mobile participants became most apparent after the first cycle commutes. Reflecting a personal lack of general cycling experience, especially in cities, personal concerns over safety and the speed at which we moved, this also meant that it was sometimes difficult to remain attentive to how participant's adjusted to the changing events and time-spaces of the commute. On non-cycle commutes, photographs provided a valuable, albeit static, way of capturing such events and time-spaces which alongside the digital voice recordings and verbal and written notes were an important aide for both memory and analysis. It proved to be too impractical and dangerous to take photographs cycling, however, as unlike travelling on foot or as a car or public transport passenger it was by and large not possible to have two hands free to take photographs. On the majority of the initial cycle commutes in London, where time and energy allowed, the route of the commute was as a result was retraced and pictures taken afterwards. While this also helped to provide a reminder of particular sections of the route it did not address the challenge of trying to be attentive to both participant's adjustments and the personal challenges and demands of the commute. The significant levels of street and traffic noise encountered and the fact the majority of time was not spent directly next to or in close proximity to participants it also became difficult at times to pick up what was said in conversations when listening back. In light of these experiences, it was decided to purchase both a small and portable video camera to record the commutes and to get in particular cycling participants to carry a digital voice recorder and wear a microphone. Given the order in which the fieldwork was undertaken, this meant that video data was not collected during any of the fieldwork conducted in autumn and winter in London. Capturing stable video recordings, especially cycling, also proved to be challenging. Although these issues were gradually resolved through trial and error, and the purchase of new equipment, it was decided that most of the videos were too shaky to playback and discuss with participants. As a result the opportunity to innovate and experiment with another way of 'aiding self-discovery' and 'facilitating discussion' with participants' about their experiences, habits and practices of mobility was not available (Merriman, 2014, p. 177; Spinney, 2009, 2011). The shakiness of some of the recordings, in addition, made it difficult to watch them for extended periods during analysis without

experiencing nausea. In some instances it was not possible to sit through the entire duration of a commute which meant they were often experienced in a rather fractured rather than continuous way. A number of these issues could have been addressed prior to the commencement of the PhD fieldwork if the equipment had of been subjected to greater trials in a pilot period or through consultation with other researchers who have employed similar approaches to cycling (e.g., Spinney, 2009, 2011).

Third, of all of the modes of mobility, and reflecting the preceding discussion, cycling presented the most challenges in terms of completing go-alongs. Due to a personal lack of cycling experience and confidence and the speed at which the bicycle used was able to travel, on a few occasions it proved to be particularly difficult to keep up with some participants on their commutes. Aside from the occasional moment of uncertainty around getting on or off public transport or knowing where to go this did not happen on other non-cycling commutes. While all cycle participants understood these limitations, this meant that there were a few occasions where the decision was made to not commute with more experienced and serious cyclists. Some thought was given to asking these participants to record a 'commute narrative' in which they vocalise 'their stream of consciousness' (Nixon, 2012, p. 1665) and/or to video their own commute using a camera attached to their helmet or handlebars (Spinney, 2011). Researchers who have used such approaches typically interview participants afterwards in order to use these voice and video recordings as prompts. For a number of reasons including the fact the interviews were used as a means of establishing a rapport with participants, initial issues over the shakiness of video, concerns over damage to the equipment and the inability to personally experience the commute, it was eventually decided to not adopt such an approach. This meant that in addition to the initial interview another avenue for gaining insights into how more experienced and serious cyclists' experiences, habits and practices of mobility was not available to be considered as part of self-discovery and analysis.

Fourth, the time spent on fieldwork ensured that the scope of the research and the data collected was restricted. The attempt to understand the conditions which give rise to particular commuting habits meant that although approximately eight months

was spent in the field, this time was divided between Auckland and London. Despite having some pre-existing networks and connections and having spent time in both cities prior to commencing the project, a lot of time was still spent contacting, explaining the research to, and building relationships with not only potential research participants but also with workplaces and organisations in an effort to gain access to possible participants. The labour-intensive nature of participant recruitment and the limited amount of time available in each city meant that the time available to conduct the research at certain times of year, especially during summer and winter in Auckland, was somewhat reduced. Moreover, these two factors, but particularly the need to generate data in both cities, also resulted in a sense of urgency to interview and go-along with a lot of research participants.

While this helped to generate a wealth of interesting and valuable data, reflecting the overall aims of the project it perhaps would have been better to have spent more time developing relationships with and trying to gain a more in depth understanding of the habits and experiences of a more select group of participants. This became apparent during the research as in some instances substantially more time was spent with certain participants due to the length of their commute or the fact they agreed to participate in repeat go-alongs at different times of the year. Although the length and duration of these encounters while at times was physically and mentally demanding, it did provide an opportunity for the researcher and participant to reflect on the events and contexts of present and past go-alongs or commutes. A more selective sample in this way would have, therefore, also provided the opportunity to spend more time reflecting on and experimenting with ways of using the materials generated by the interviews and go-alongs to encourage participants to reflect on their own habits, experiences and practices of mobility.

Fifth, the focus of study is another limitation of the research. The project reflecting its focus on New Zealand migrants in London and British migrants in Auckland is not able to provide a more comprehensive analysis of the ways in which experiences and habits of mobility are influenced and mediated by cultural traditions and practices as well as race (see Aldred & Jungnickel, 2014; Cresswell, 2010). This decision also indirectly limited the socio-economic and age diversity of the sample as the ability for people to migrate and subsequently remain in either country is

increasingly determined by strict border control policies around age and occupation. This meant that the sample, particularly in London, tended to be predominantly young (18-29 or 30-39 year old age groups) professionals. As a result the ways in which people's habits and experiences change over longer periods of time as with age the physical capacities and skills of their body change were not considered in detail. There are a number of other dynamics and issues which were not explicitly interrogated which are likely to mediate everyday mobility habits, experiences and practices including socio-economic relations such as class and income, identity, occupation and gender (see Cresswell, 2010; Hanson, 2010; Law, 1999; Waitt & Harada, 2012). Some attention was paid to the ways in which gender dynamics within the workplace and beyond and occupation mediate certain commuting-relevant habits and practices such as getting dressed (see Chapter 5) and the experience and timing of the commute (see Chapter 6). Despite being aware of how socio-economic relations and income can structure people's access to and use of different forms of mobility (see Cass et al., 2005) these issues were not explored. Consequently, age, gender, socio-economic relations and occupation, and the diverse ways in which they interpenetrate, did not play a significant role in guiding the analysis for the PhD. These concerns are likely to be central to further attempts to analyse, understand or critique the ways in action emerges within certain social and physical environments.

Overall, the need to generate and collect data, in this case on the environments and phases of action, within the restrictions of budget and time has ensured that like any research project decisions had to be made which meant that not every potentially interesting or relevant avenue of inquiry could be explored. The thesis in drawing upon and considering a wide variety of qualitative data still provides a robust analysis of the issues at hand but in doing so it is important to recognise its limitations in that it is necessarily sensitive to all of the ways in which action continually emerges in certain social and physical environments.

3.8 Conclusion

This chapter has examined how the research framework and methodology for the PhD was developed from an initial research proposal, written as part of an eventually

successful application for a Commonwealth scholarship, into a research project carried out in Auckland and London. The aim of understanding how individual action continually emerges in particular social and physical environments has informed the selection of these two cities and the decision to focus on 'locals' and migrants commuting by different modes of mobility. The research was not explicitly designed to be a comparative study but instead to understand the role that the social and physical environments of Auckland and London played in conditioning individual's actions and thoughts. Despite this, comparisons do emerge directly and indirectly at times in empirical chapters, especially Chapter 4. The methodologies adopted have subsequently emerged both from the need to generate and collect data on routine, ordinary and habitual action. This has involved using a variety of methods to generate a range of data on the stable and dynamic aspects of the internal (bodily capacities and skills) and external (social, cultural, material) environments, and phases (habitual, reflective), of action. The data generated by this approach is employed in the next three chapters to illustrate how John Dewey's situated, relational and emergent understanding of action is relevant to contemporary debates surrounding behaviour change, sustainability and climate change, especially in relation to everyday mobility.

Chapter 4.
A ‘nudge’ in the right direction: From ‘choice architectures’ to ‘habit infrastructures’

4.1 Introduction: Anne’s drive to the bus stop

> Shortly after we arrive at the stop, Anne checks to ‘see if [the bus is] on time’. She moves slightly closer to get a better look at the electronic display board which reports the number of minutes until the next expected service, ‘oh [its] not too far’. Turning back she enquires as to whether I’m ‘looking forward [to] getting back to England’. It is around 0620 in the morning, which is when we left her apartment the first time we travelled together. Today we are approximately five minutes earlier as Anne wanted to ensure she would be able to secure a park in the nearby street where she usually leaves her car during the day. Unmetered and less than a minute’s walk from the bus stop it is a popular with her and other bus commuters who arrive early enough to secure a parking spot. During the four minute drive from her apartment she explained that recently spaces have become a scarce commodity as much of the street has been sectioned off to provide parking for the company responsible for laying down broadband cabling in the area (see Figure 4.1). After a short chat about my remaining fieldwork in Auckland and London and planned PhD submission date the bus arrives, which as it transpires is an earlier bus than she normally catches, and we board [Auckland Field Notes, Tuesday 18 June 2013].

Routine and mundane journeys such as Anne’s commute are increasingly of interest for transport planners, modellers, policy-makers, researchers and governments alike. A central concern here, which was explored in in Chapters 1 and 2, is identifying measures and interventions which will encourage or ‘motivate’ individuals to make less resource and carbon intensive transport decisions and ‘choices’ (DfT, 2011, 2013; MfE, 2007, 2008; MoT, 2008). The ways in which governments in many countries including New Zealand and the UK have sought to design and implement transport and other public policies are increasingly being influenced by libertarian paternalism or nudge theory (Ly & Soman, 2013; Whitehead et al., 2014). Libertarian paternalism, it was argued in Chapter 2, provides governments with both an explanation as to why behaviour change initiatives have been largely unsuccessful

in the past and as a way of redressing these shortcomings in the future. These failures, libertarian paternalists hold, can be attributed to the fact such initiatives are founded on the incorrect assumptions of mainstream economics that humans think and act rationally (Camerer et al., 2003; Thaler & Sunstein, 2003, 2008). Drawing insight from various disciplines including behavioural economics, behavioural psychology and neuroscience they instead argue humans are primarily irrational beings whose decisions are shaped by various biases, social norms and the design of everyday environments (Ariely, 2008; Camerer et al., 2003; Gilovich et al., 2002; Norman, 1988; Simon, 1955; Thaler & Sunstein, 2008).

Figure 4.1. Waiting for the bus to central Auckland with Anne in early winter in Takapuna. The road cones in the centre of the picture are being used to cordon of a section of road which has been dug up while new broadband cabling is installed in the area. Sections of the unmetered neighbouring street where Anne and other bus commuters regularly parked their cars during the day were also cordoned off to provide parking for the company responsible for the installation. As a result Anne began leaving home earlier to help ensure she could secure one of the remaining parking spots in the street.

Before elaborating on the aim and structure of this chapter let us momentarily reflect on Anne's commute as a way of introducing how the ideas of nudge might be applied to issues associated with transport and climate change. Anne, in some ways, is the (environmentally) responsible citizen whom governments are trying to produce

through the implementation of behaviour change policies. Living in an area where public transport is a 'viable option' she now makes the 'choice' to commute primarily by bus to work rather than her private car as she did previously (DfT, 2013, p. 13; MoT, 2008). In Auckland, and to a lesser extent London[9], many people including Anne tend to rely on their car to access local public transport services. Anne observed during her initial interview that sometimes she leaves 'home and walks to the Takapana bus station and gets the bus from there'. She went on to suggest that typically she ends up driving 'more often than [she] walks' for 'two reasons'. First, it allows her to go to the gym, which is a fifteen minute drive away from her house, straight 'after work'. Second, her bags in which she carries her lunch, iPad, umbrella, and 'sometimes' a spare jacket, are 'often quite heavy'. The role the car continues to play in otherwise relatively low carbon commutes such as Anne's can be understood in two contrasting ways. On the one hand, the car and associated 'park and ride' facilities can reduce the inconvenience of, and makes it easier for people to travel by, public transport. On the other hand, such facilities can perpetuate car dependence by reducing the provision of feeder services to bus and train stations. Rather than exploring these arguments in depth here we will instead focus on how nudge theorists might understand Anne's account.

Nudge theory would suggest the reason Anne continues to drive can be attributed to the fact that like all humans, her automatic (unreflective, emotional and impulsive) rather than reflective (rational, slow and deductive) system tends to dominate her action and thought (see Chaiken & Trope, 1999). The environment or 'choice architecture' which she inhabits additionally serves to reinforce this impulse to drive to the bus stop every morning (cf. Thaler & Sunstein, 2008). Libertarian paternalists, assuming this practice was identified as an issue needing to be resolved, would recommend interventions which go with 'the grain of what is depicted as human nature' (Leggett, 2014, p. 5). Resulting interventions would focus on transforming the hard (e.g., road markings, footpaths, roads) and soft architectures (e.g., public advertisements, peer-to-peer pressure, feedback, incentives) which routinely result in Anne driving more often than not (cf. Jones et al., 2011a, 2011b). More traditional

[9] It is more common for commuters travelling into London from the cities outer zones and bordering counties to drive to park and ride facilities before continuing the rest of their journey by public transport (Niblett & Palmer, 1993; Palmer & Ferris, 2010).

approaches informed by mainstream psychology and economics, in contrast, would attempt to 'break' or 'defrost' her habit of driving typically by focusing only on the soft architectures involved in her decision making (cf. Schwanen et al., 2012). By being attentive to how decisions are influenced by biases and the physical (and social) environment and trying to work with existing habits it has been argued that nudge theory can help to address numerous issues including those associated with transport and climate change (see Avineri, 2012; Metcalfe & Dolan, 2012; Thaler & Sunstein, 2008). In the context of such assertions and the growing prominence of libertarian paternalism within policy-making, this chapter explores what Dewey's account of habit, custom, and experience reveal about the limits of such an approach.

The remainder of this chapter is divided up into five sections. First, Section 4.2 examines how notions of 'nudging' and 'choice architecture' might be applied in a mobility context and their limitations. The section finishes by arguing the concept of 'habit infrastructures' provides a better way of understanding how action emerges in particular social and physical environments. Second, by engaging the mobilities literature Section 4.3 examines how the car has come to dominate cities around the world through state promotion and the production of (auto)mobile subjectivities. Third, building on these insights Section 4.4 elaborates how particular policy and planning decisions have not only shaped Auckland's urban form and transport systems but have significantly contributed to its current auto-dependent habit infrastructures and subjectivities. Fourth, Section 4.5 after briefly considering patterns of car use in London reflects on how particular (public)mobility subjectivities, especially in relation to the underground, have emerged as a result of the city's habit infrastructures. The chapter concludes in Section 4.6 by arguing that the notion of 'habit infrastructures' by providing a better understanding of the internal and external environments of action can better inform attempts to realise environmental and climate change policy goals than that of 'choice architectures'.

4.2 Nudging: Understanding the mechanics and limits of choice architecture

Libertarian paternalists, to briefly reiterate (see Section 2.3.1), start from the assumption that humans are largely irrational beings who rely on various biases to

make decisions and whose choices are influenced by social norms and the design of everyday settings. Consequently, they hold 'choice architects' can improve people's choices and behaviour by 'nudging' them in 'directions that will make their lives better' (Thaler & Sunstein, 2008, p. 6). This often involves subtly re-configuring the contexts in which choices are made such as in a cafeteria by positioning healthy food at eye level and placing sweets in a more obscure location. Such nudges are inexpensive, do not limit other choices and attempt to work with people's automatic system and their *predictably irrational* biases (Ariely, 2008; Thaler & Sunstein, 2008).

A choice architect is understood as any private or public actor responsible for 'organizing the context in which people make decisions' (Thaler & Sunstein, 2008, p. 3). By making what might seem arbitrary decisions (e.g., the design of a building or the layout of a bar or canteen) such actors can have significant impacts on people's behaviour. This is attributed to the fact that these 'small and seemingly insignificant details' by focusing an individual's attention in certain ways can powerfully shape their actions (Thaler & Sunstein, 2008, p. 3). By recognising this power, private sector and government institutions are in a position where they can 'nudge' or 'move people in directions that will make their lives better' (Thaler & Sunstein, 2008, p. 6). A nudge is understood thus as 'any aspect of the choice architecture that alters people's behavio[u]r in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid' (Thaler & Sunstein, 2008, p. 6). A number of ways in which these ideas might be translated in a mobility context have been suggested, two of which will now be considered as a way of illustration (see also Avineri, 2012; DfT, 2011; Jones et al., 2013, pp. 81-110; Metcalfe & Dolan, 2012).

Thaler and Sunstein (2008, pp. 37-38), for instance, use the example of changes made to Chicago's Lake Shore Drive. The road 'hugs the Lake Michigan coastline on the city's eastern boundary' and offers the driver 'stunning views of Chicago's magnificent skyline' (p. 37). The problem is, however, that there is 'one stretch of this road that puts drivers through a series of [dangerous] S curves' which many drivers fail to reduce their speed for and 'wipe out' (p. 37). In response, Thaler and

Sunstein inform us, the city has recently adopted a new approach for 'encouraging drivers to slow down' which they consider to be illustrative of a 'nudge'. They explain:

> At the beginning of the dangerous curve, drivers encounter a sign painted on the road warning of the lower speed limit, and then a series of white stripes painted onto the road. The stripes do not provide much if any tactile information (they are not speed bumps) but rather just send a visual signal to drivers. When the stripes first appear, they are evenly spaced, but as drivers reach the most dangerous portion of the curve, the stripes get closer together, giving the sensation that driving speed is increasing. One's natural instinct is to slow down. When we drive on this familiar stretch of road, we find that those lines are speaking to us, gently urging us to touch the brake before the apex of the curve. We have been nudged (Thaler & Sunstein, 2008, pp. 37-38).

This is a nudge because corresponding with their definition it alters people's behaviour in a predictable way, does not forbid any options and is easy and cheap to avoid. The Department for Transport's (2011) relatively recent white paper aimed at making 'sustainable local transport happen' provides another example of how these ideas might be applied but in a UK context:

> The Government wants to encourage and enable more sustainable transport choices. … In transport terms, this might be exemplified by reducing unnecessary signs, posts and other street clutter to improve road safety and encourage walking, by travel planning, or by presenting information in such a way as to encourage choice (DfT, 2011, p. 34; see also Jones et al., 2011b; 2013).

Here again, we see how 'nudging' involves making only very limited, if any, changes to existing infrastructures and still begins from the assumption that choices are the best target for encouraging individual's to transition to more sustainable modes of transport. A significant problem with this approach is that it is increasingly recognised that the transition to more sustainable and less carbon intensive lifestyles will require large-scale transformation across every sector of society (McGeevor, 2011; UNEP, 2007). This will entail not simply 'nudging citizens' in 'low cost' and 'low pain' ways (Dolan et al., 2010, p. 7) but rather dramatic changes in how existing social, institutional and infrastructural conditions are organised and function (McGeevor, 2011; Shove & Spurling, 2013). Moreover, as McGeevor (2011, p. 306) asserts climate change policies including those associated with personal mobility will

require regulations and restrictions that 'conflict ideologically with notions of personal choice and freedom'. Section 4.2.1 argues a substantial limitation of nudge approaches in this context are that they fail to consider or even acknowledge the ways in which choices are conditioned, enabled, and in the case of automobility often made necessary, by pre-existing infrastructures, norms and subjectivities (see also Section 4.3).

4.2.1 The limits of nudging and possibilities of habit infrastructures

The concept of choice architecture advances the ways in which the external environments of action have come to be understood in much research and policy on behaviour change, transport and climate change (see Chapter 2). Technologies, interfaces, architecture and infrastructure are typically characterised as simply external casual 'variables' or 'factors'. This is reflective of how certain economic and psychological accounts of human behaviour have come to dominate both research and policy. One of the main limitations of such approaches for Shove (2010) is that in identifying these external 'motivators' or 'barriers' they provide no method for understanding how they drive or prevent different behaviours (see also Chapter 5). In this context nudge theory does, albeit in a rather limited way, provide a method and way of explaining the role of such variables. This entails being attentive to how people's automatic cognitive system, which is assumed to dominate thought and action, shapes their interaction with choice architecture and decision making. By understanding how the physical and procedural environment in which a choice is made influences human behaviour, nudge theorists assert it might be possible to redesign or reconfigure these contexts in ways that facilitate positive behavioural outcomes.

Nudge, in this way, does move beyond simply identifying external motivators and barriers and attempts to provide some explanation of how they drive or prevent behaviours. A growing body of literature has illustrated, however, the social, political and ethical limitations of libertarian paternalist thought (Barr & Prillwitz, 2014; Davis, 2011; Horton, 2009; John et al., 2009; Jones et al., 2011a, 2011b, 2013; Leggett, 2014; Pykett et al., 2011; Selinger & Whyte, 2011; Selinger & Whyte, 2010; Strauss, 2009; Whitehead et al., 2011). There are three points which emerge from this literature which are particularly pertinent to this chapter (for overviews of other

arguments see Jones et al., 2011a, p. 56; Leggett, 2014; Selinger & Whyte, 2011). The first corresponds with Shove's (2010) critique of the way dominant accounts of behaviour change understand the external environments of action alluded to above. In her view, these explanations also provide 'no method of establishing [the] history, [the] dynamic qualities [and the] interdependence' of external variables and factors (Shove, 2010, p. 1275). Although she does not explicitly consider nudge theory, her arguments nonetheless equally apply. For example, Leggett (2014, p. 11), corresponding with observations above, argues nudge provides a 'useful' way of understanding the 'interface between the agent and their immediate physical environment'. In doing so he observes, however, that it 'neglects how that environment is itself a historical product, and one shot through with the traces of previous decisions, contestations and relations of power' (Leggett, 2014, p. 11). The configuration and markings of roads, the use of speed bumps and the provision cycle paths, in other words, do not start and end with the 'strategy of individual choice architect, abstracted from time, space and institutional relations' (Leggett, 2014, p. 11; Strauss, 2009). As Dewey reminds us 'institutions, social custom, collective habit' persist because 'individuals form their personal habits under conditions set by prior customs' (1922a, p. 58). Correspondingly, as the second and third points below elaborate, by relying on an 'individualistic conception of the autonomous chooser' libertarian paternalism rarely gives due consideration to how these pre-existing conditions constrain action and decision-making (see also Jones et al., 2011a, p. 56).

Second, despite their attempts to unsettle the very notion of individual choice, behaviour is 'social' for libertarian paternalists only to the extent that what an individual does and thinks can be influenced by social norms and group identities. Understood as the 'aggregate' of individual choices (Leggett, 2014, p. 11) the social or 'norms' are considered important in two ways. On the one hand, the actions and thoughts of other people 'conveys information' to an individual about what 'might be [their] best' course of action or way of thinking (Thaler & Sunstein, 2008, p. 54). On the other hand, 'peer pressure' encourages individuals concerned about how others perceive them to 'go along with the crowd to avoid their wrath or curry their favour' (Thaler & Sunstein, 2008, p. 54). Thaler and Sunstein (2008, p. 54) thus assert the 'power' of these 'social influences' can be used to 'promote many good (and bad) causes'. To support this claim they draw attention to a number of psychological

experiments which illustrate individuals 'following the herd', for instance, by complying with their tax obligations, stopping smoking or reducing their energy consumption after being made aware that the majority of other people are acting or thinking in this way. The 'real difficulty' with such an account of the social is 'the individual' is 'regarded as something given, something already there' (Davis, 2011; Dewey, 1920, p. 193; Leggett, 2014; Strauss, 2009). There is no recognition how an individual *becomes* a self through the process of living 'in an environment which is social as well as physical' (Dewey, 1915, p. 91). Thus 'individuality is not originally given but is created under the influences of associated life' (Dewey, 1920, p. 193). The 'traditional notion of mind as something complete in itself' falls to recognise 'grouped action' which is 'some fairly settled system of interaction among individuals' in a 'particular time' and a 'particular place' (Dewey, 1922a, p. 61). 'Laws, state, family, friendship', education, work, and 'other institutions and arrangements' (p. 188) are 'means for *creating* individuals' (Dewey, 1920, p. 194, original emphasis). It is through participation in these institutions and arrangements and the shared activities they entail that 'experiences, ideas, emotions, values are transmitted and made common' (Dewey, 1916; 1920, p. 207).

Third, by drawing on the collective wisdom of 'emerging science of choice' it is argued nudge theory provides a more accurate portrayal of human behaviour than the that of the self-interested economic man (Camerer et al., 2003; DellaVigna, 2009; Thaler & Sunstein, 2008, p. 7). The extent to which these new insights about human conduct, however, advance previous understandings is overemphasised (Davis, 2011; Leggett, 2014). Libertarian paternalists, Davis (2011) contends, not only remain preoccupied with the model of the rational actor they also promote a 'normative' account of 'individuality itself' (p. 62). Moreover, as their interpretation of individuality is informed by 'standard rationality theory', the implication is 'rational experts ought to help make *Homo sapiens* behave as much as possible [like] *Homo economicus*' (2011, p. 62). This is consistent with what Davis sees as their 'strategy of revising *Homo economicus* rather than replacing it' (2011, p. 62). Meanwhile, Leggett (2014, p. 11) contends that nudge's agent could just equally be considered 'a *regression*' as at least *Homo economicus* is 'capable of purposive reasoning and action'. The human subject in nudge in contrast is seemingly 'forever dominated by its impulsive, unreflective automatic systems' (Leggett, 2014, p. 11).

Libertarian paternalists, as we have already seen above, suggest individuals tend to do what everyone else does either after observing or being made aware of how the 'herd' behaves. This is reflective of their tendency to portray the social and physical environments of action in a 'deterministic manner' whereby such 'choice architectures' are held to 'almost automatically' shape human behaviour (Jones et al., 2011a, p. 56). The individual 'is taken as something given already' and 'anything that can be done to [them] or for [them] can only be by way of external impressions and belongings: sensations of pleasure and pain, comforts, securities' (Dewey, 1920, p. 194). Dewey, in contrast, observes the social and physical 'world we have experienced becomes an integral part of the self' (1934, p. 104). Our life 'possesses continuity because it is an everlasting renewed process of acting upon the environment and being acted upon by it together with institution of relations between what is done and what is undergone' (1934, p. 104). We are co-constituted rather than determined by our contexts for Dewey because even 'as we act to shape our environments, our environments shape our selves' (Sullivan, 2001; Tan, 2004, p. 29). Thus 'subject matter gains expressiveness because of [the] cumulative continuity' of experience which in turn shapes the 'self that acts and is acted upon in further experience' (Dewey, 1934, p. 104):

> In their physical occurrence, things and events experienced pass and are gone. But something of their meaning and value is retained as an integral part of the self. Through habits formed in intercourse with the world, we also in-habit the world. It becomes a home and the home is part of our every experience (p. 104).

In this way, Dewey once again reminds us of the important role that habits, which are formed and operate in action play in constituting the self. Nudge theorists as we have seen stress in most situations 'people tend to be somewhat mindless, passive decision makers' due to their impulsive and unreflective 'automatic system' (Thaler & Sunstein, 2008, p. 37). Habits are 'controlled by the Automatic System' and can be trained through sheer repetition (Thaler & Sunstein, 2008, p. 89). This suggests they are understood as simply 'conditioned responses or passive routine' (Tan, 2004, p. 29). Dewey (1922a) instead asserts habits are 'active means, means that project themselves, energetic and dominating ways of acting' (p. 25) that can be 'intelligent and routine' (p. 71) and capable of change. Importantly, habits are 'ways of using and incorporating the environment' (p. 15) which have a 'special sensitiveness or

accessibility to certain classes of stimuli, standing predilections and aversions, rather than bare recurrence of specific acts' (Dewey, 1922a, p. 42). Dewey reminds us then that the way people 'respond to environmental cues and 'choice architectures'' is always mediated by the habits and meanings which emerge in particular social and physical contexts and form the basis of their subjectivity (see also Davis, 2011; Jones et al., 2011a, p. 56).

The remainder of the chapter, focusing primarily on systems of automobility and public transport, examines how states and transport infrastructures and systems give rise to particular collective habits or 'customs' and subjectivities. In doing so the aim is to reemphasise in light of the reasons outlined above why current understandings of 'choice architectures' are severely limited. In contrast, the notion of 'habit infrastructures' informed by a Deweyan understanding of habit, custom and experience captures the way subjectivities or 'choices' are always *conditioned* but not determined by the histories and politics of physical environments and established social norms, values and ideologies, as individuals always retain the capacity to act upon the world. In this context the term 'infrastructure' is preferred over 'architecture' as it is increasingly being used as a metaphor for 'making sense of human being and sociality in the city' and acknowledging 'the liveliness of socio-technical systems' (e.g., Amin, 2014, p. 138; Graham, 2010; Graham & Marvin, 2001; Harvey & Knox, 2012; McFarlane, 2011). Given that contemporary cities including those where this research was conducted remain to more (Auckland) or a lesser (London) extent 'rooted in and defined by automobility' the next section examines how the car has become such a dominant global force (Sheller & Urry, 2000, p. 737).

4.3 The global dominance of the car

The global rise of the car has been attributed to the 'separate and combined choices of millions of individuals to purchase and use cars, move to the suburbs, and so on' (Paterson, 2007, p. 91). These choices are believed to be reflective of an intense human desire for freedom which the car has allowed to be extended (cf. Dunn, 1998; Lomasky, 1997). Such explanations, which largely correspond with the assumptions of much research and policy on behaviour change and nudge theory, have been put

forward by pro-car advocates (e.g., Dunn, 1998; Lomasky, 1997) and are apparent in more general political discourse (Paterson, 2007). This narrow focus on individual agency ultimately naturalises how 'the car has become the dominant mode of transport' (Paterson, 2007, p. 76). Given that 'everything is only the outcome of millions of individual decisions, and people 'naturally' make 'superior' over 'inferior' choices, the domination of the car can be presented as inevitable' (Paterson, 2007, p. 76). More critically, Paterson asserts 'the explicitly normative argument that not only can automobility not be stopped, it *ought* not to be, either … as cars represent an, if not *the*, expression of human autonomy, and thus to criticise cars is in effect to be 'an enemy of freedom'' (2007, p. 81).

This emphasis on the autonomous mobile individual it has been argued (see Chapter 2), however, provides little insight into how an individual's 'choice' to buy and use a car is embedded within the system of automobility. It is this 'system' which 'makes the act of driving a car – and more specifically the act of driving a car as an act of 'autonomous mobility' – *possible*' (Bohm et al., 2006; Paterson, 2007, p. 25, original emphasis; Urry, 2004). John Urry (2000; 2004, p. 27), as discussed earlier (see Section 2.4.1), argues it is the complex '*combination*' of social-technical components of the system of automobility which have been responsible for the expansion and continuing ascendancy of the car and the 'specific character of domination' that it entails. Although enlightening, his portrayal is largely apolitical providing little insight into the 'concrete decisions and the struggles over them which favoured automobility over its alternatives' (Goodwin, 2010; Paterson, 2007, p. 26). Automobility can be understood as 'systemic' as Urry suggests, while recognising that it is simultaneously 'composed of concrete decisions to favour certain sorts of interests, normative visions, forms of power and so on, and is frequently contested and challenged in ways which shape its development as a 'system'' (2007, p. 27). Following Paterson (2007) the remainder of this section redresses the lack of politics in Urry's account in two ways. First, by examining how states have promoted automobility because of the way cars have come to be understood as central to encouraging economic growth (Section 4.3.1). Second, and relatedly, by elaborating on attempts to promote and produce a 'new type of person, a new subject, orientated towards the sort of movement which cars make possible' (Paterson, 2007, p. 121; Section 4.3.2).

4.3.1 Automobility, economic growth and state promotion of the car

Paterson (2007, p. 92) emphasises that the growth of automobility needs to be understood as a trait of a 'particular pattern of capitalist development' which resulted in states promoting the car in the twentieth century (for a more detailed analysis see Paterson, 2000; 2007, pp. 92-120). Cars have been viewed across extensive and varied political and economic discourses as central to 'the promotion of economic growth' and, therefore, 'the reproduction of capitalism as a system' in at least two ways (Paterson, 2007, p. 92). To begin the car has in various ways directly stimulated the economy. The arrival of the car and suitable roads significantly increased the flexibility and freedom of people's movements. This facilitated economic growth by creating new business opportunities for individuals either able to travel further afield or potentially sell automobile goods and services (Rae, 1971). The flexibility afforded by the roads, in contrast to the railway, also contributed to decreasing the costs of goods and services (Hoyle & Smith, 1998) and increased the incomes and/or productivity of doctors, farmers, clergymen, insurance agents and school supervisors who owned cars (Flink, 1975). Correspondingly, the expansion of the car industry has had far-reaching forward and backward linkages (see Dunn, 1998):

> Investment in a car simultaneously presupposes a range of backward linkages – in steel, aluminium, oil, rubber, plastics, lacquers, glass, construction, lead, platinum […] – and entails or creates an even wider range of forward linkages – filling stations, tourist cabins, trailer parks, insurance, health care, advertising, maintenance (of both cars and roads), spare parts, legal fees, in-car gadgets and so on (Paterson, 2007, p. 96).

These linkages become even more extensive if the investment in cars and associated activities is considered in terms of how they have stimulated activity across diverse areas of the economy. For example, if the 'process of suburbanisation' is recognised 'as an 'effect' of the development of automobility then increased highway construction … and the suburban real estate boom (with associated investment in [infrastructures such as] sewers, telephones, electricity provision, schools, shopping malls, etc.) all become part of the knock-on economic consequences of the emergence of the car' (Flink, 1975; Paterson, 2007, p. 97; Rae, 1971).

Second, the motor industry by restructuring industrial production (e.g., Fordism) has played a significant part in promoting growth through effecting wider political and economic shifts in consumption (Dicken, 1998; Maxton & Wormald, 1995; Ross, 1995). The 'development of the assembly line, the intensified division of labour, the mechanisation of increasing numbers of tasks and then later flexibilised production, just-in-time (JIT) delivery, robotisation and so on all led to productivity gains which meant that prices could be radically reduced and thus more widespread consumption was enabled' (Paterson, 2007, p. 95). For Paterson in both of these respects the role the car has been assumed to play in economic growth has been 'crucial in legitimising [its] expansion, enabling the car to become perhaps *the* symbol of progress for most of the twentieth century' (2007, p. 92, original emphasis).

The car industry, unlike previous 'public' mobilities such as bicycles, trains and trams, provided 'significant improvements in the capability to commodify means of mobility and at the same time accelerate the movement of goods and people in the economy' (Paterson, 2007, p. 115; Urry, 2000). States upon recognising these advantages and how they might assist them in their structural role of encouraging economic growth eventually started to promote the car in both obvious and less obvious ways (Paterson, 2000, 2007). State support for the car, Paterson (2007) contends, has assisted not only the car in becoming so dominant but also allowed states to reproduce their power. He argues such promotion, therefore, is 'perhaps best understood in terms of the state's structural role in capitalist societies, its general imperative to support the conditions for [economic growth] and the requirements for [growth] in specific historical periods' (Paterson, 2007, p. 115).

States, after initially placing restrictions on cars (see Wall, 1999), have promoted cars in at least three ways (also see Klare, 2001, 2004). First, they have built roads both within and between urban areas. For Wolf (1996) one of the essential differences between roads and rail is that it is relatively straightforward to make a division between the regulation and ownership of roads (transport infrastructure) and cars, lorries and trucks (the modes of transport). This division has simultaneously allowed states to support the car while giving rise to a system which functions through the '[p]rivate appropriation of profit' and the 'socialisation of costs and losses' (Wolf, 1996, p. 89):

> Private profits are appropriated on the vehicle manufacturers, the insurance companies and the motorway construction firms; costs are socialised by means of public financing of motorway construction, policing, hospitalisation of the injured and repairs to the environment (Wolf, 1996, p. 89).

Road building has been a central component of this system (Luger, 2000). As Paterson (2007, p. 116) observes the 'emergence of the car demanded improvements to the quality of road surfaces and the emergence of mass-motorised societies demanded substantial increases in the quantity of roads'. All states have come to recognise the 'provision of such investment out of general public expenditure' (Paterson, 2007, p. 116) to be one of their 'natural function[s]' (Wood, 2010, p. 77). Excluding the few roads which have been privately funded through tolls, the costs incurred in building roads have historically been paid by states (Freund & Martin, 1993).

The costs incurred in building roads suitable for the car, and to avoid dust in urban centres, however, have been significantly higher than those in pre-car eras (Paterson, 2007). Additionally, the immediate benefits associated with their construction have 'increasingly been received primarily by car users whereas previously users of the roads of various types, employing a variety of transport modes (horse, carriage, cart, bicycle, trams and pedestrians) and for non-transport uses, such as leisure and commerce, benefited from road building and maintenance' (Paterson, 2007, pp. 116-117). The building of urban expressways served to further increase, and the construction of motorways maximised, the benefits of the car (Paterson, 2000). An important and distinct feature of the design and regulation of these constructions is that they directly exclude pedestrians and bicycles (Paterson, 2000). Moreover, they are intentionally planned to 'compete with/replace trains', which in the past provided the main mode of interurban transport, 'by avoiding or going straight through city centres' (Paterson, 2007, p. 117).

The first motorways were constructed by Mussolini and then Hitler, mainly for military purposes, but various countries proceeded to develop them shortly afterwards. The 'road' or 'highway' lobby has played a significant role in this process convincing governments to spend substantial sums of public money in many countries including the United Kingdom (Hamer, 1987; O'Connell, 1998) and the United States (Davies, 1975). The 'coalition of car, oil and construction companies,

allied with highway and municipal engineers, is regarded as the single most powerful political lobby' (Paterson, 2007, p. 117). In the early 1930s, this lobby proposed a 1,000-mile network of motorways in the UK which was adopted by the Labour government of 1946 and finished ahead of time in 1976 (Hamer, 1987). Upon completion the network was quickly extended to 3,500 miles, with the government again closely following the plans suggested by the British Roads Federation, an organisation which was serving as a platform for the roads lobby (Hamer, 1987).

The second way in which states have promoted cars is by neglecting alternative means of transport. Since 1945 state spending on transport has 'systematically favoured roads' (Headicar, 2009; Paterson, 2000, p. 267). A number of scholars have charted the decline of rail during this period in many countries as large sections of the network were systemically dismantled (Headicar, 2009; Pooley, 2010; Wolf, 1996). Paterson (2007) suggests that the 'recurrent complaint is that there is no 'level playing field' between road and rail' with rail investments in the UK, for example, being required to 'show a profit while the costs of road construction are written off by the state' (p. 117). The third and final aspect relates to the 'hidden subsidies' directed towards the car 'relative to its competitors' (Paterson, 2000, p. 267). In Paterson's view the 'net effect of relevant fiscal policies is usually regarded as favourable to the car' despite 'high petrol taxation in many countries' (2000, p. 267). He suggests 'the differential treatment of infrastructure investment between road and rail is clearly an important component of this but other aspects are also significant' (2000, p. 267). For instance, the tax relief on provision of company cars is estimated to be worth approximately $400 billion in subsidies for the car (Athanasiou, 1996).

4.3.2 Producing the (auto)mobile subject

The promotion of the car by states has not been limited to road building, the planning and development of low-density suburbs, the neglect and downgrading of public transport and non-motorised forms of transport, and fiscal measures which subsidise the car. It has also entailed the promotion and production of a new kind of person or subject who is orientated towards and values the possibilities that the car creates for instantaneous, flexible and seamless movement (Paterson, 2007; Rajan, 1996, 2006; Seiler, 2008; Urry, 2004). The possibility of automobility depends on an 'automobile subject' who as 'its principal daily agent' has 'been produced, has multiple forms

and is continually being reproduced through a complex interplay of popular cultural forms, daily practice, regulatory interventions, surveillance and resistance' (Merriman, 2006, 2007; Paterson, 2007, p. 164; Rajan, 2006; Seiler, 2008). Those who have sought to 'take seriously the reality and depth of the identities produced around the car' (Paterson, 2007, p. 122) have drawn inspiration largely from Michel Foucault's (1967, 1977, 2007) work on governance and governmentality and the writings on the cyborg or hybrid figure from STS scholars such as Donna Haraway (1991) and Bruno Latour (1993).

For Foucault (1967, 1977, 2007) political attempts to produce and govern mobile subjects predate the car and emerged during the eighteenth century. During this period he argues governors became particularly concerned with circulation and movement (Douglas, 1999; Foucault, 2007), which he suggests marked:

> […] the emergence of a completely different problem that is no longer that of fixing and demarcating the territory, but of allowing circulation to take place, of controlling them, sifting the good and the bad, ensuring that things are always in movement, constantly moving around, continually going from one point to another, but in such a way that the inherent danger of this circulation are cancelled out. No longer the safety of the prince and his territory, but the security of the population and, consequently, of those of who govern it (Foucault, 2007, p. 93).

Movement was problematic then as the ambition of governors was to 'create the conditions for accelerated and controlled movement of people for various purposes of 'government'' (Paterson, 2007, p. 126). These needs were primarily to produce 'mobile, productive bodies' who 'could engage in economic production more effectively, move physically to where labour was needed and serve in mass armies which were becoming required for military/strategic reasons' (Paterson, 2007, p. 126).

Sennett (1994), like Foucault, notes how metaphors of circulation and flow came to guide the principles of urban design during the eighteenth and nineteenth centuries. The terms 'artery' and 'veins' he observes came to be applied to city streets by designers, who following William Harvey's revolutionary scientific findings, 'sought to model traffic systems on the blood system of the body' (Sennett, 1994, p. 264):

> Enlightened planners wanted the city in its very design to function like a healthy body, freely flowing as well as possessed of clean skin. Since the beginnings of the Baroque era, urban planners had thought about making cities in terms of efficient circulation of people on the city's main streets. … The medical imagery of life-giving circulation gave a new meaning to the Baroque emphasis on motion. … [T]he Enlightenment planner made motion an end in itself [by] emphasiz[ing] the journey itself (Sennett, 1994, pp. 263-264).

Correspondingly, Paterson (2007) argues that the car emerged at a historical moment during which other forms of mobility such as the trains and trams began to encounter at least two problems. First, people began to complain about 'the rigidities of trains and trams and the monopolistic practices of many transport companies' (Paterson, 2007, p. 126). These issues helped to allow the car '[m]ore than any other consumer good' to provide 'fantasies of status, freedom and escape from the constraints of a highly disciplined urban, industrial order' (McShane, 1994, p. 148). The experience of the First World War was the second impetus for automobility. Although trains 'made possible massive increases in the speed of mobilisation' of weaponry and troops they did so in a way which was 'exceptionally dependent on the strict following of strict schedules' meaning 'once mobilisation was started, it was practically impossible to stop' (Paterson, 2007, p. 133). The 'decisive advantage came with those who innovated in terms of their ability to move' through new technologies of movement such as the armoured tank (Paterson, 2007, p. 133; Virilio, 1986). The car helped resolve, therefore, 'two blockages to the circulatory system' (Paterson, 2007, p. 134).

For Foucault (2007) there were two main elements associated with ensuring the circulation and flows of people, goods and money. The first was that particular modes of movement needed to be 'proscribed, constrained and limited' by controlling populations through a variety of means (Douglas, 1999; Paterson, 2007, p. 126). Second, motion needed to be 'regularised to prevent disorder' and 'make people productive' (Paterson, 2007, p. 126; Usher, 2014). The first strategy involved exercising modes of sovereign power by restricting and controlling movement through 'technologies of government' (Foucault, 1977, 2007; Miller & Rose, 1990, p. 8). Meanwhile the second strategy sought to shape and regularise movement through what Foucault (1977, 2007) terms 'bio-power', a form of disciplinary power,

whereby through ‘technologies of the self’ or subjectivation individuals govern themselves (Foucault, 1988, p. 17). For Foucault ‘the tension between these two elements in governors’ strategies plays itself out to the present day’ (Douglas, 1999; Paterson, 2007, p. 127).

In the context of automobility, Foucault’s notion of ‘technologies of government’ has been deployed as a way of understanding the ‘architectures, knowledges, instruments and legal frameworks which translate political rationalities and shape the performances and movements of drivers, vehicles, and the spaces of the road’ (Bonham, 2006; Manderscheid, 2014; Merriman, 2006, p. 76; 2007; Paterson, 2007; Seiler, 2008) For example, following Sennett (1994) it has been noted that the ‘emergence of the modern understanding of travel and transport formed the actual precondition for the governance and political institutionalisation of transportation and spatial planning policies’ (Bonham, 2006; Manderscheid, 2014, p. 612). This entailed redefining the purpose of streets ‘from a public place to which everybody had equal access’ to a space of transit where motorised vehicles took precedent over pedestrians (Bonham, 2006; Manderscheid, 2014, p. 612; Norton, 2008). Bonham (2006, p. 583) argues the re-conceptualisation of travel as transport or the ‘movement from one point to another in order to participate in activities at the ‘trip destination’’ was a more significant innovation ‘than the train, tram or automobile’ as it:

> has made it possible to objectify travel practices and create knowledge about the efficient completion of the journey. The production of transport knowledge has involved separating out, classifying, and ordering travel practices in relation to their efficiency. This ordering of travel establishes a hierarchy which not only values some travel practices (rapid, direct, uninterrupted) and some travellers (fast, orderly, single purpose) over others but also enables their prioritization in public space (Bonham, 2006).

Discourses on and representations of the car and automobility are by no means restricted to policies, planning and traffic (see Section 4.3.1). Cars have come to be variously understood as symbols of progress, freedom, autonomy and safety in popular culture (for an overview see Paterson, 2007, pp. 142-162) such as literature (Howe, 2002; Samuels, 2002), films (Eyerman & Lofgren, 1995; Mottram, 2002) and music (Field, 2002; Widmer, 2002), and advertising and marketing (Gunster, 2004; Paterson & Dalby, 2006; Wernick, 1991). Public transport, in contrast, is

typically connected with ‘inflexibility, impunctuality, slowness and poverty’ (Manderscheid, 2014, p. 613). As Manderscheid (2014, p. 613) argues this ‘discursively produced hierarchy of different forms of transportation associates automobility with ‘normality’’ and public transport, cycling and walking as ‘additional or deviant cases’. This mode of thinking, corresponding with the earlier critique of choice architectures (Section 4.2.1), ‘pre-structures spatial and transport policies and planning, perpetuating the bases of power upon which they build’ (Manderscheid, 2014, p. 613). Moreover, as Urry argues mobility landscapes which embody such sedimented knowledge and power tend to stabilise and reinforce the socio-spatial order of the automobile:

> The ‘structure of auto space’ forces people to orchestrate in complex and heterogeneous ways their mobilities and socialities across very significant distances. The urban environment, built during the latter half of the twentieth century for the convenience of the car, has ‘unbundled’ territorialities of home, work, business, and leisure that had historically been closely integrated and fragmented social practices that occurred in shared public spaces. …. Automobility divides workplaces from homes, so producing lengthy commutes into and across the city. It splits homes and business districts, undermining local retail outlets to which one might have walked or cycled, thereby eroding town-centres, non-car pathways, and public spaces. It also separates homes and various kinds of leisure sites, which are often only available by motorized transport (Urry, 2006, p. 19).

The Foucauldian concept of ‘technologies of the self’ has been used to highlight the ways in which ‘drivers’ were produced as ‘particular sorts of individuals who could function successfully in the new automobile environments’, and others were ‘reproduced’ as ‘people who needed to adapt to them’ (Bonham, 2006; Merriman, 2006; Paterson, 2007, p. 137). New ‘rules, advice and training for drivers, road signs’ and various other paraphernalia simultaneously emerged to ‘prepare drivers for new driving conditions and the skills and mentalities required to navigate them’ (Merriman, 2006; Paterson, 2007, p. 137). Merriman (2006, 2007), for example, illustrates attempts to redress the problems associated with drivers lacking appropriate skills and experience to safely negotiate the M1, the first large motorway in the UK, upon its opening in 1959. He emphasises how motorway drivers where produced through different elements of governance including the development of the

Motorway Code which aimed ‘to persuade drivers to translate its coded recommendations into embodied and habituated techniques for conducting oneself and one’s vehicle safely along the motorway’ (Merriman, 2007, p. 144). Moreover, there was a ‘parallel production of other subjects who must co-exist with cars’ (Paterson, 2007, p. 137) through education programmes such as the *Look Both Ways Club* which focused on children as part of an approach to encourage the widespread adoption of specific walking practices (Bonham, 2006). In particular, the programme’s ambition was to ‘cultivate the habit of looking to the right then looking to the left before leaving the safe haven of the footpath’ (Dollman, 1930 cited in Bonham, 2006, p. 67).

This attentiveness towards Foucault’s writings has been proceeded by an interest in the work of STS scholars such as Donna Haraway (1991) and Bruno Latour (1993) as a way of tracing ‘the materialities and practices associated with such hybrid or cyborg figures’ (Merriman, 2006, p. 76) as ‘human-car co(a)gents’ (Michael, 2000, p. 73), the ‘car-driver’ (Lupton, 1999; Sheller & Urry, 2000, p. 752) and ‘carson’ (i.e., car-person) (Bohm et al., 2006; Katz, 1999; Michael, 2000, p. 90; Urry, 2000). These hybrid or cyborg identities cannot be understood in terms of ‘the grafting of particular skills and orientations onto pre-existing humans who then are able to control machines which remain separate from them, but rather the production of hybrid subjectivities which are the particular meshing of humans and machines’ (Paterson, 2007, p. 139). As Paterson elaborates:

> The ambiguity present in the very term 'automobility' serves as a good way of introduction to this way of thinking about the 'automobile subject’. There is little ambiguity in the noun 'automobile' - an artefact which moves itself. It is immediately connected to the term 'automatic' or 'automation', which again implies movement or action without external force being applied. But at the same time the whole ideological apparatus of automobility serves to emphasise that not only does it refer to the vehicle moving itself but that the person using the vehicle is simultaneously 'moving autonomously' - this is a mobility which serves, produces and makes possible human autonomy. In one mode of imagining, the car is a machine which moves itself; in another automobility involves a fusing of car and driver which means that the car is a prosthetic and it is the driver who is moving autonomously. … [The] coining [of] the term 'carson' refer[s] to the merger of car and person …. There is widespread recognition and articulation that 'drivers

> experience cars as extensions of their bodies' (Thrift, 2004, p. 47) – a widely quoted comment by a Californian city planner in the 1930s was that 'it might be said that Southern Californians have added wheels to their anatomy' (Paterson, 2007, pp. 139-140).

Both the work inspired by Foucault and STS serve as a reminder that the emergence and continued reproduction of automobility is at once a '*means to liberation and means of domination*' (Douglas, 1999, original emphasis, p. 149). Cars 'express human freedom but they simultaneously express it through the subordination of the human body not only to the technology of the car itself and the disciplines this imposes (concentration, immobility within the car itself, etc.) but also to the whole panoply of regulatory mechanisms constraining the automobilist's practices as a driver – from parking restrictions and traffic lights to tax regimes or pollution control requirements. People thus participate intimately in the production of their subjection to this order, conceiving it precisely as the realisation of their freedom' (Paterson, 2007, p. 142).

Importantly, as Section 4.2.1 indicates these literatures are by no means incompatible with Dewey's pragmatist writings. A number of similarities have been noted between Dewey and Foucault including their writings on power and subjectivity (Auxier, 2002; Rabinow, 2011; Reich, 2011; Stuhr, 1997, 2003). Dewey, for example, observes '[p]ower, as well as, interest comes by use and practices' (1987, p. 224) and that 'liberalism knows that an individual is nothing fixed, given ready-made. It is something achieved, and achieved not in isolation but with the aid and support of conditions, cultural and physical: — including in 'cultural', economic, legal and political institutions as well as science and art' (1935, p. 227). Elsewhere he notes attempts to encourage individuals to 'concentrate in moral introspection upon their own virtues and vices' and thus 'perfect ourselves from within' (Dewey, 1920, p. 196). Reich (2011, p. 186) argues that Foucault's work, however, 'insists more decidedly on an analysis of power and power relations' than Dewey's. Moreover, prior to Latour and other STS scholars Dewey articulated similar arguments 'regarding humans' relationship to nature, the problem of theoretical dualisms, knowledge as socially constructed, and the location of action and meaning in the relations between people and/or things' (Brinkmann, 2004; Cutchin, 2008, p. 1564;

Hickman, 2011). Dewey (1922a, p. 25) writes a saw and hammer, for instance, are only 'potential means' until they are 'employed in some actual making':

> They are actual means only when brought in conjunction with eye, arm and hand in some specific operation. And eye, arm and hand are, correspondingly, means proper only when they are in active operation. And whenever they are in action they are cooperating with external materials and energies (Dewey, 1922a, pp. 25-26).

Furthermore, in his later writings, especially the *Knowing and the Known* (1949) which he wrote with Arthur Bentley, he stressed the importance of understanding the self as emerging out of 'transactions' rather than 'interactions' with the environment. Interaction 'assumes the organism and its environmental objects to be present as substantially separate existences or forms of existence, prior to their entry into joint investigation' (Dewey & Bentley, 1949, p. 123). Meanwhile, transaction 'indicates dynamic entities that are continually undergoing reconstitution through their interconstitutive relations with others' (Sullivan, 2001, p. 13). A point Dewey and Bentley (1949, p. 128) emphasise in observing: 'Organisms do not live without air and water, nor without food ingestion and radiation. They live, that is, as much in processes across and 'through' skins as in processes 'within' skins'.

4.4 Habit infrastructures I: Politics, materiality and customs

> […] The train pulls into Homai Station (0857) and two women and their sons (perhaps 6 or 7 years old) board the carriage I'm on. They sit on two of the bench seats that face each other close by. It strikes me as unusual as I can't recall any instances of seeing children that age with their parents on the train. … I overhear the two mums talking about the 'last time' they were on the train. One observes it was 'really busy'. … At Middlemore station (0914) the ticket inspectors come through our carriage. The ladies explain the 'last time' they caught the train they could buy tickets on board. Witnessing these events another lady has started talking with an older women who appears to be travelling with her grandchild. She explains how since they have introduced the automated 'Hop card' system it has got worse for the 'occasional traveller'. The ticket inspector lets the two mothers purchase on board tickets. As he leaves he asks the two boys 'Are you enjoying the train?' Looking at their children both of the mothers nod and one suggests 'it is great fun'. … Another man observes to his mother-in-law he catches the train 'once in a blue

> moon' while boarding at Sylvia Park (0929). He soon finds a seat with her, his wife and five children. It is at this point I realise it must be the school holidays [Journey on the Southern Line from Takanini to Britomart, Auckland Field Notes, Tuesday 23 April 2013].

It was argued in Section 4.3 that the car has come to dominate the ways in which many cities, and those who inhabit them, continue to be (re)defined and (re)produced (Sheller & Urry, 2000). This dominance has not arisen 'through the 'natural' actions of millions of individuals' (Paterson, 2007, p. 76) or as an outcome of a non-linear, autopoietic system, which by generating 'the preconditions for its own self-expansion' (Urry, 2004, p. 27) became 'locked in' following its establishment (p. 32). The first explanation, to reiterate, neglects to recognise the ways in which individuals are always embedded within this system. Meanwhile, the latter 'begs the question of how the process started, since the various processes of 'lock-in' occur only after the system has become dominant' (Paterson, 2007, p. 125). Both fail to recognise how historically the system has been 'socially produced' and promoted through physical interventions (e.g., road building, suburbanisation) and political and cultural practices (e.g., advertisements, discourses, rules, regulations) (Paterson, 2007, p. 87). Moreover, the opening excerpt highlights the importance of understanding how 'automobility is continually reconstituted and is thus always changing' rather than simply 'locked in' (Goodwin, 2010, p. 62). Although it demonstrates how Auckland's rail network remains a 'novelty' for many it simultaneously draws attention to ongoing attempts to upgrade and modernise existing infrastructures in an attempt to encourage a shift away from the car. The remainder of this section explores how history and politics have and continue to shape the habit infrastructures of Auckland. Building on Section 4.3 it begins by elaborating how particular moments in the development of Auckland's urban form and transport infrastructures have contributed to its current auto-dependent habit infrastructures (see also Bush, 1971, 2014; Harris, 2005; Mees & Dodson, 2002).

4.4.1 Auckland: City of the car

Social phenomenon 'cannot be understood', Dewey (1938, p. 492) asserts, except 'if there is a prior understanding of physical conditions and … their interactions'. Auckland has gone through a series of development phases since European

settlement around 1840 (see Bloomfield, 1967; Dahms, 1980; Gu, 2010). The suburbanisation of the city began with the construction of tramways (horse 1884-1901; electric 1902-1956) from 1884 but increased during the 1920s and especially the 1930s as a result of new tramlines, roads, privately developed middle-class suburbs and state-funded lower-income housing estates (Bloomfield, 1967; Dahms, 1980; Pool et al., 2007). Bloomfield (1967) notes that the 'all-weather' bitumen roads constructed during this interwar period in response to 'growing car ownership' were a 'significant factor in suburban expansion' (p. 18). These developments coincided with other changes including new suburban shopping centres and roadside garages along main roads, a shift in architectural style from the 'European villa to the American bungalow', and the relocation of manufacturing industries into suburban locations (Bloomfield, 1967, p. 18; Dahms, 1980). The development of these new industrial areas in Penrose, Onehunga, Westfield and Otahuhu has been attributed to The Industrial Efficiency Act of 1936 which encouraged 'local' manufacturing for the national market which necessitated greater production and larger factories than could be accommodated in the central city (Dahms, 1980). These relocations created a new 'pattern of commuting' which 'signified a revolutionary change' from when the 'tram was supreme and most jobs were found in the central core' (Dahms, 1980, p. 7). Dahms (1980, p. 7) argues as a result the 'spatial extent, character and physical form of these areas were quite distinct' from those of earlier suburbs and it was from this point onwards that the car began to 'challenge older forms of transport'.

Despite these changes public transport patronage prior to the mid-1950s was high with approximately 58% of trips made by public transport and 42% by car (ARPA, 1956). These figures tend to overstate the role of the car as the study which was conducted as part of the planning process for the city's first master transportation plan did not count cyclists or pedestrians (Mees & Dodson, 2002). After 1955 patronage declined significantly whereby by 2000 only 2% of trips were made by public transport and 96% by car in the city (Mees & Dodson, 2002). It has been observed that this 89% decrease is 'the largest decline in public transport recorded over this period in any large city in the world' (Mees & Dodson, 2002, p. 279). This dramatic transformation has been attributed to the election of National in 1949, a centrist party dominated by market liberals (McKinnon, 2003; Pugh, 1983). Previous Reform (1911-1928) and particularly Labour (1935-1949) administrations adopted a

state-led approach to urban development building new towns and suburbs that were to be connected to central business districts by railway (Evans, 1972; Harris, 2005). Such initiatives were started in Auckland prior to 1929 but were arrested initially because of a focus on Wellington immediately prior to, and following, World War Two (Harris, 2005). Labour had revealed plans to replicate the Wellington model in Auckland and Christchurch as part of a ten year regional development plan in 1946 (Harris, 2005). Up until mid-1954 both Labour and National had maintained a formal public commitment to completing the Auckland rail upgrade but as the November 1954 election approached the central government 'began to show signs of changing their mind' (Gunder, 2002; Harris, 2005, p. 44).

Harris (2005) charts the role Railways Minister W. S. Goosman played in helping to ensure Auckland's rail upgrade was no longer an election issue. Following a series of meetings with Goosman the Chairman of the Auckland City Council Town Planning Committee K. B. Cumberland and Auckland Councillor Dove-Meyer Robinson set up a five-member committee to investigate whether to 'transfer the cost of the railway upgrade to the building of motorways' (Harris, 2005, p. 45). The committee's recommendation to develop a Master Transportation Plan was accepted by the Auckland City Council on 28 October 1954. This plan would be overseen by a technical committee of the Auckland Regional Planning Authority (ARPA) and headed by an Auckland City Engineer. This same engineer had earlier been critical of a report (Halcrow, 1950) commissioned by the New Zealand Railways department which had recommended that the rail network be electrified, the development of an underground system in Auckland, greater integration of rail and bus services and a single transport authority (Dickson, 1954; Mees & Dodson, 2002). He had also advised the original special committee that motorways could 'kill two birds with one stone' by catering for both cars and bus transit (Dickson, 1954, p. 1111; Harris, 2005). Aside from the head engineer the rest of the technical advisory committee was made up of representatives from Auckland's twenty-two municipalities, all of whom sent their traffic engineers, and one rail representative (Mees & Dodson, 2002).

The committee considered the recommendations made in the Railways department report against the proposal of the municipal road planners and National Roads Board to develop a network of motorways and a bridge across the Auckland Harbour

(Gunder, 2002; Mees & Dodson, 2002). Reflecting the composition of the committee, it unsurprisingly recommended the motorway scheme justifying their decision in the following manner:

> The individual has been freed from the absolute dependence on tramways and railways with their inflexible routes… The pattern of travel has become more diffused and traffic cannot now be channelled along a few fixed routes with the same destination. There is a rising curve of motor usage and a decline in the use of public transportation (ARPA, 1956, p. 5).

Elsewhere it was observed the motor vehicle 'is probably the greatest mechanical convenience man [*sic*] has yet devised for himself' (ARPA, 1956, p. 87). Following their recommendations construction began on the motorways and the Auckland Harbour Bridge and by the end of the 1970s most of the proposed network was completed (Mees & Dodson, 2002). The initial development of the motorways as Figure 4.2 highlights also entailed attempts to convince the public of the value of investing in 'modern roads'.

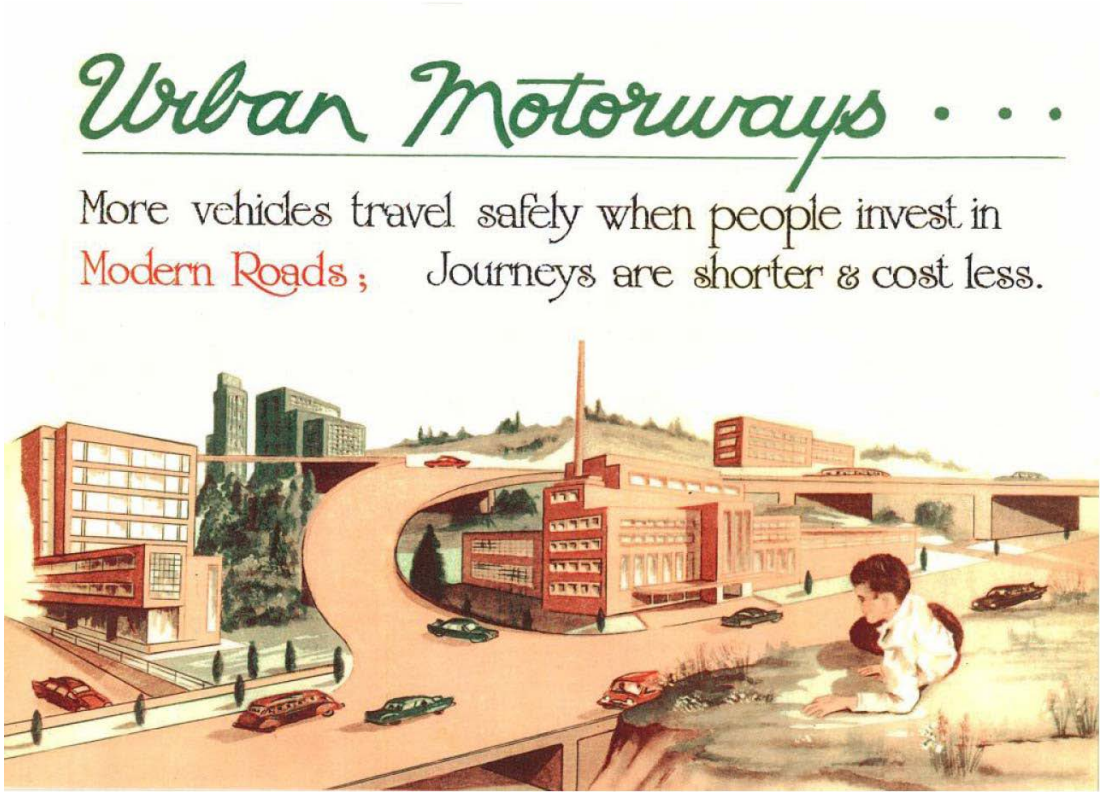

Figure 4.2. Visual representation of Auckland's proposed motorway system included in a document explaining the district scheme for Auckland. Harris (2007b, p. 17) notes 'the resemblance to early landscape paintings, of the kind that are devoid of people save for a sheperherd or two and some ruins, is no doubt unintentional but nonetheless striking'. Source: ACC (1958).

Another important development which proceeded the 1955 Master Transportation Plan, and is often overlooked in accounts of the rise of the car in Auckland (e.g., Gunder, 2002; Harris, 2005; Mees & Dodson, 2002), was the dismantling and replacement of the city's extensive tram network with electrically powered trolley and diesel buses between 1946 and 1956 (see Stewart, 1993, 1996, 1997). Figure 4.3 illustrates how prior to this point cars had to compete with both trams and buses for road space. The introduction of buses was justified on the basis that by not requiring tracks they were both less costly to maintain and more flexible than tramways (Stewart, 1993, 1996, 1997).

Figure 4.3. Peak hour traffic congestion into Auckland's central business district. Source: ARPA (1956).

Since 1955 pro-automobile policies have remained entrenched institutionally and intellectually in Auckland transport planning (Hickman et al., 2014; Mees & Dodson, 2007). This brief overview of the history of Auckland's urban form and transport infrastructures can usefully be situated in relation to renewed consideration in geography of the 'counterfactual' (Gilbert & Lambert, 2010), or in Massey's (2005, pp. 111-117) terms, 'possibility', 'chance', 'undecidability' and 'happenstance'. Pooley's (2010) counterfactual historical geography of twentieth-century Britain is

particularly thought-provoking in the current context. Drawing on historical and contemporary research on travel and transport he has sought to envisage what current transport infrastructures, patterns of individual mobility and urban life might look like if a decision had of been made to prohibit the ownership of private cars in 1910. Patterns of everyday mobility, Pooley (2010, p. 266) contends, 'would not have differed significantly from today so long as other forms of transport had remained or expanded to cope with this demand'. Under this scenario, however, journeys would likely have been planned in alternative ways, 'may have been qualitatively different from travel today', and might have resulted in particular population groups such as women being disadvantaged (2010, p. 266). Importantly, a 'landscape without cars would probably also have altered the form of cities, with services provided closer to where people live, and levels of air pollution substantially lower' (2010, p. 266).

In Auckland, even if the committee had recommended the New Zealand Railways department proposal the city would be by no means 'car-free' given the various changes that favoured the car from the 1920s onwards. It is likely the city's urban form and subsequent approaches to planning and policy, however, might have been less car-centric (see Harris (2007a) for an interesting discussion of an 'alternative Auckland'). Recent political events indicate changes are beginning to occur albeit slowly. These include the formation of a new 'super-city' council in 2010 (which amalgamated eight local councils and one regional council) and the election and re-election of Len Brown, a strong public transport advocate, as mayor, and investment in public transport infrastructure. Notable recent developments include the opening of Britomart (2003), a central city railway station, and the purpose-built Northern Busway (2008), introduction of a new integrated ticketing system (2012) and the operation of the first electric trains (2014; nearly a century after they were first proposed) (see Auckland Council, 2014; Auckland Transport, 2014). In 2012, public transport trips exceeded 70 million for the first time since the tram lines were removed in 1956 (Auckland Transport, 2014). Despite these increases, 85% of all trips within the region continue to be made by car (Auckland Council, 2014) and Auckland has one of the highest levels of car ownership in the world (Auckland Regional Council, 2005). Unsurprisingly automobility continues to be the dominant habit infrastructure that shapes people's habits, meanings and experiences of mobility in the city.

4.4.2 Making sense of and experiencing everyday mobility in Auckland

A number of participants reflected on the ways in which the urban form of Auckland and other cities in New Zealand had contributed to the development of a certain 'mindset'. Brian who was born in the city and has commuted to work by car all his working life was relatively apologetic about his continued car use throughout his interview. He initially suggested the weather and Auckland's inadequate public transport system were the main reasons for why he continues to drive (see Section 5.1). Upon further questioning he rather defensively attributed his car use to the 'Kiwi mindset' that 'we've always driven so we'll always drive'. In places such as New York and London he later elaborated there is 'a different mindset' towards the car because they have 'very good public transport system[s]'. In contrast, he felt that there is 'a way to go yet [before] public transport in Auckland is … close to being there'. To further support this point he observed how he has or would also drive in most major cities in Australia. For Brian then his and others car use has become normalised through inadequate public transport provision. Similarly, Mike a regular cycle commuter who has been living in the city since 2006 was aware of how previous political decisions have had a lasting effect on the city and its people. In his view there needs to be a change of culture as well as infrastructure:

> … I think New Zealand is a wolf dressed in sheep's clothing you know? Like we pretend to be all fantastical and we are not. … [T]here needs [to be] a culture shift. I think Auckland just needs a kick in the pants to be honest and they kind of have [had one]. There were some really bad … political decisions made back in the day by some really right wing people and there were some knife edge things that happened it could have swung either way and it would have changed the way that Auckland … works. And … it is … overcoming norms … and getting away from these central concepts … of the car and the freedom that a car involves. And I'm not saying that you have to take freedom fully away from people but I think that you need to give people options and I don't think those options are fully provided currently. They are just coming at it from a bad angle eh? Because everyone now that they are so dependent on cars is saying 'build more motorways' and it is a limited mind set [that] will only get you so far.

Brian and Mike's accounts illustrate how the promotion of the car in Auckland has contributed to the formation of the city's habit infrastructures, which again is understood as a particular assemblage of the social and the material. Moreover, as Mike emphasises these habit infrastructures continue to (re)produce predominantly (auto)mobile subjectivities which Brian embodies. For Dewey (1922a) the social customs or collective habits of a specific time and place shape the actions and thoughts of individuals. In his view the 'assimilation of [one's] own acts to the pattern' of the activities of those who 'are already there' is a 'prerequisite of a share therein, and hence of having any part in what is going on' (Dewey, 1922a, p. 58). He uses the rather fitting metaphor of a road to illustrate his point:

> Few persons have either the energy or the wealth to build private roads to travel upon. They find it convenient, 'natural', to use the roads that already there; while unless their private roads connect at some point with the highway they cannot build them even if they would (Dewey, 1922a, p. 59).

Edensor (2006) and Paterson (2007) have, in a corresponding manner, emphasised how (auto)mobile subjectivities take on multiple and localised forms as they emerge out of the intricate interplay between daily practice, social norms, popular culture, rules and regulations, resistance and surveillance. Such subjectivities as Brian and Mike highlight became apparent in the way people made sense of their experiences of everyday mobility in Auckland.

Olivia who was living in London before immigrating to Auckland six years ago, observed how 'much easier [it was] to get around [as] there is less traffic and it takes about a quarter of the time to get anywhere'. She explained how she had previously driven in London until the congestion charge was introduced:

> I preferred driving even though it took about the same time … but then they put in the [congestion charge] … and you couldn't drive certain ways and … the parking started to dry up. So in the end I could only go by train. I didn't have an option.

Since moving to Auckland she has mostly lived within walking distance of work. Although work is 'a ten minute walk' up the hill from her current property she admitted initially driving 'a lot because … [she was] really lazy whereas now it is more and more [she does not] take the car'. Upon first arriving in Auckland, however, she 'live[d] over on the Shore [which] would take maybe thirty minutes in traffic and outside of traffic maybe fifteen minutes' to get to work. Reflecting on

driving in London she suggested it was not really ‘traffic’ though because ‘everyone is very polite’. ‘You just patiently wait’ and it ‘is just a bit more relaxed and stress levels are down’. She went on to explain as it is a different type of driving you are required to become a different ‘car-driver’ (Lupton, 1999; Sheller & Urry, 2000) as a result:

> I've been driving since I was seventeen because my dad is all about cars. So I’ve driven all over [the UK]. … But you have to learn to drive aggressively [in London] compared to here. This is a different type of driving [than what] I was trained in [laughs]. … I've never experienced people cutting me up. … [B]ecause you don't have to be as snidey and tough I think the [*laughs while saying*] *driving is not so good*. [P]eople aren't used to having to drive very aggressively and know what they are doing and know what is going on around them. ... So it is a different kind of driving where you are driving almost in allowance for other people not knowing how to drive on the road. And that's a generalisation for everybody. [As] I don't have to [drive aggressively] … anymore it is very relaxing driving now.

Olivia was not alone in noticing how the habits, meanings and experiences associated with her (auto)mobile subjectivity had changed as a result of living in Auckland. Beth and Jack moved to Auckland eight years ago from the UK for lifestyle reasons. They outlined the various benefits and challenges of living and bringing up children in Auckland rather than their native Newcastle upon Tyne. Not having any ‘family support’ they suggested has meant they have become a ‘very tight unit’ with the children being ‘are very family focused’. In one of their many extended discussions they reflected on Auckland’s driving culture:

> Beth: I was telling Jack about this the other day. … I was saying in England travelling [the] distance [I do to work] would not have seemed such a big thing. But I think it is a cultural thing in New Zealand and in Auckland. … [I]f anyone has to get on the motorway basically it becomes this big thing about what a big journey you've got. And I've heard that so many times and thought why are people whinging like this because gosh in England travelling up the road that far is not really bad. … I've got caught up in that Auckland culture … thinking I've got a commute when really it is not even a commute is it? […] I've got caught up mentally in that culture. So now I've got this tiny little [commute]

and people are like [*puts on a different voice*] *'oh you've gone to Ellerslie*' like it is the jungle and it is not a commute really.

Jack: Because I use to commute between Newcastle and Sunderland going through the Tynne Tunnel and it wasn't a bother.

Beth: It is probably the same distance I'm travelling and that's not a bother. And it wasn't a bother when I use to travel … from Peterlee to Newcastle or vice versa. [Y]ou were just travelling. I must admit the motorway wasn't as jammed as it is here so maybe that is why people get feed up.

Over the course of this interaction we see how Beth reflects on how through her experiences of driving as well as interactions and conversations with work colleagues and friends she has come to understand that her commute is a 'big journey' despite the fact that back in the UK she would have perhaps interpreted it differently. This occurs because 'if an activity which is an interaction of various factors, or a grouped activity, comes to consciousness it seems natural that it should take the form of an emotion, belief or purpose that reflects the interaction, that it should be an 'our' consciousness or a 'my' consciousness' (Dewey, 1922a, p. 62).

In Section 4.3 it was observed how the 'structure of auto space' tends to normalise car use (Urry, 2006, p. 19). Notably, Beth and Jack initially struggled to explain why they had rarely used or even contemplated using public transport in Auckland. Jack noted that living in Newcastle he would regularly 'use the bus, the metro and train to get to Sunderland'. Beth initially suggested it was probably 'because [they] knew it' having 'grown up there' whereas they 'don't really know it [in Auckland]'. Picking up on this Jack observed:

> And I wouldn't know how to get a bus see from here to school say I had to rely on public transport. All I would be able to know is to walk along where the end where the diary is and look for the bus stops and stop at each one as it went down to school. … [W]hereas in England there is that much because we used the Metro and the buses a lot. It was easier to access them.

In his attempt to find an explanation he further reflected on living in Newcastle: 'If we lived closer to Auckland city and the parking was a problem like it is in Newcastle at times […] we would look at the suitable transport'. 'I think that is why we use to use the Metro or bus to get in'. At which point Beth observed '[y]ou don't

have to take the car'. They highlight as a result how in comparison to Auckland at least, the habit infrastructures of Newcastle are not only less auto-dependent but as Maureen observed in a London context, encourage you to 'think about not using the car'. Reflecting Maureen's sentiments a number of New Zealand born participants such as Tom and Lydia discussed how their experiences of living in London had encouraged them to reconsider their (auto)mobile subjectivities.

Tom has been back in Auckland for almost two years after living and working in London on a two year youth mobility visa with his partner. He was a 'lot keener to use the train coming back' and noted that it had actually 'improved a lot since [they] left'. The close proximity of Kingston railway station to their shared flat also made it really easy to 'just go and grab it'. In explaining that if it was 'a bit further away' he perhaps 'would [not] use it as much', Tom reflected upon how he had changed since being back:

> It is actually funny … [because] when you are in London … you walk everywhere…. [E]ven though you have a car it is quicker and … easier to walk and you can just get on a tube and go. Probably don't walk as much as we use to … because we have cars and we can park fairly easily. So that's something we feel a bit guilty about actually [*laughs*]. Should probably walk around more.

He went on to suggest that he has 'kind of gotten back into the Kiwi way of life' which is 'a bit more laid back [as] you don't have to worry about walking to … and then getting the tube':

> [Y]ou just … jump in your car and go. You kind of tend to love your car a lot more. Like when we were in the UK we we're always like 'oh man we will be walking so much more'. Like we [thought] we [would] be walking from Kingsland to Ponsonby [as] that's kind of normal [in London] and it won't be an issue but we don't. […] [Y]ou get out of that habit. I think for a while we were walking a bit more but then you just kind of stop walking. And it is probably the fact that there is a lot more distance between your friend's houses and you can't just get a train there you have to drive basically.

Thus Tom illustrates how the auto-dependent habit infrastructures of Auckland '*coerces*' people to live 'their lives in [the seamless], spatially stretched and time-compressed ways' the car makes possible (Urry, 2004, p. 28, original emphasis).

Lydia, who has now been back in Auckland for three years, talked about 'the shock of coming home and driving a car or having someone drive you and … having one engine ... powering a few people to drive a distance is quite a crazy luxury'. 'Because beforehand [she] had just thought, assumed that you had to have a car, and it was normal and everyone has a car and never really questioned it':

> [When I got back though] I didn't want a car [as they are] too expensive and I'd done without it in London and I was like maybe I can do without it here. It is kind of unusual but maybe it is possible [*laughs*]. So yeah that's why I was like [I] definitely [need to find a place to live somewhere] central.

Living in London she observed 'really influenced' her and her husband's 'thinking' in that they 'thought … it is actually just a luxury to have a vehicle … for two people or … just for one person and do we really need to do that'. Subsequently they decided to join to the Cityhop car sharing scheme which has a parking station 'super conveniently' located close to where they live. They 'try to not to [use it too frequently though] because it is [*laughs while saying*] *actually quite expensive*'. Here the fact there is a supermarket in close proximity, Lydia is within a short walk from work, and her partner works from home, all support their auto-independence: 'If we [*says while laughing*] *move anywhere else we are screwed*'. For example, 'if they moved a bit more of a villa or somewhere that is not as close then [they] would have to cave and get a car because it's just a bit harder'.

Despite the suitability of their current location she went on to observe how outside of the working week it can get a 'little tricky' both logistically and socially as not everyone agrees with their decision to not own a car:

> [O]ur friends are really nice to us and pick us up all the time. I don't know how long that is going to last. [W]e did get a lot of flack when we first kind of came back and we were like 'nah we're not getting a car' everyone was like 'what's the hell wrong with you?' 'What are going to do? You are screwed' [*laughs*]. But um we resisted that and [*laughs*] stuck with it.

Lydia's account reveals how the particularities of Auckland's habit infrastructures continually co-constitute the subjectivities of those who co-exist in diverse ways with and without cars. Correspondingly, the next section reflects on how the habit infrastructures of London in part promote and produce the (public)mobile subject.

4.5 Habit infrastructures II: (Public)mobility subjectivities

> […] I get to the Walkabout in Shepherds Bush shortly before kick-off. I was pleased when Delwyn told me he was watching the game here as it is one of those 'Kiwi' institutions in London I've always meant to visit. Entering the bar I'm struck by the number of New Zealand guys everywhere. I semi-seriously joke to myself that I should think about trying to do some participant recruitment. Walking through the bar trying to find Delwyn and his mates I observe a couple of guys dressed in All Blacks jerseys having a conversation: 'Did you see Robo has got a new girlfriend? She is a good chick and [*raises his voice with excitement*] *she has got a car man!*' […] [London Field Notes, Saturday 20 October 2012].

London has one of the most intricate public transport systems in the world which reflects the scale and complexity of the city and the fragmented and disjointed manner in which it has developed (Pooley et al., 2005). As the opening excerpt illustrates these transport systems have played significant role in ensuring that car use and ownership in parts of London has and is increasingly becoming a rarity. Reflecting its complex and fragmented history of social, political and infrastructural development there were many moments of 'possibility', 'chance' and 'happenstance' (Massey, 2005, pp. 111-117) which could have altered the current habit infrastructures of the city (see Barker & Robbins, 1963, 1974). For example, the London Underground which today forms an integral component of the city's transport network was by no means a certainty. The construction of underground lines had been considered as early as the mid-1830s by would-be railway promoters but doing so presented significant challenges. The 'law obliged anyone who burrowed under buildings to buy them outright, even though [they] might undermine only a part of the foundations' (Barker & Robbins, 1963, p. 100). Due to the extremely high cost of property in central London 'it followed that only routes likely to pay their way were those which ran under roads and open spaces and passed underneath as few buildings as possible' (Barker & Robbins, 1963, p. 100). Robert Stephenson, for instance, had considered 'extending the future London & Birmingham Railway to the Thames' by running a line under 'Gower Street and down to the north end of Waterloo Bridge' (Barker & Robbins, 1963, p. 100). But the 'hazards of constructing a railway just below the surface in the midst of expensive property, where the slightest subsidence would lead inevitably to a

succession of extravagant claims for compensation' were viewed to be too great (Barker & Robbins, 1963, p. 100).

Another scheme which proposed to 'run from King's Cross, down the valley of the river Fleet as far as the main Holborn-Cheapside road at Snow Hill' also came to nothing (Barker & Robbins, 1963, p. 100). Importantly, it attracted the interest of Charles Pearson who was to become a City Solicitor and a leading promoter of several schemes (Barker & Robbins, 1963; Day & Reed, 2010). He helped establish the City Terminus Company in 1852 with the intention of building an underground railway from Farringdon to King's Cross (Day & Reed, 2010). Despite receiving support from the City of London for the plan the company struggled to proceed as the main-line railway companies were not prepared to 'bear the risks' for what was considered 'an adventurous speculation' (Barker & Robbins, 1963, p. 104). Recognising the 'financial possibilities' of such a venture, the Metropolitan Railway soon developed alternative scheme with a Bill supporting it passing through Parliament unopposed in 1854 (Barker & Robbins, 1963). The outbreak of the Crimean War meant that like Pearson and the City Terminus, the company struggled to raise capital to support the scheme. It was not until 1859 that sufficient capital could be raised to allow the construction of the line to begin (Barker & Robbins, 1963). Opening in 1863 the line was extremely successful carrying 9.5 million passengers in its first twelve months which resulted in a flood of applications to parliament for new railways in London (Simpson, 2003).

More recently, the establishment of the Congestion Charge Zone in 2003, as Olivia's account highlighted (Section 4.4.2), has played a important role in not only reducing traffic volumes but also the various infrastructures that support the car such as the availability and cost of parking. A recent TFL report notes how over the past decade there has been 'a progressive decline in the volume of traffic' especially in central London where 'vehicle kilometres fell by 23 per cent between 2000 and 2012' (TfL, 2014, p. 13). Correspondingly, it is observed that the introduction of congestion charging has 'had a significant impact in shifting people away from using cars, contributing to an overall reduction in vehicle kilometres in London of 11 per cent' over this same period (TfL, 2014, p. 13). The introduction and success of this scheme, however, was far from certain. Richardson (2004, p. 488) has argued that

the possibility of making such ‘radical (and perhaps less consensual)’ decisions on managing traffic was only possible in London. This is because ‘powers over public transport have remained more complete’ in London than other UK local authorities whose power have been ‘stripped through deregulation and privatization of public transport in the 1980s and 1990s’ (Richardson, 2004, p. 488). Equally important though was ‘visionary political leadership’ of Mayor Ken Livingston who decided to proceed ‘despite the extent of expressed opposition’ among London citizens and especially key stakeholders such as the business community (Richardson, 2004, p. 488). Meanwhile, Shove and Walker observe the success of this scheme was ‘by no means guaranteed’ as ‘the imposition of the cordon and the charge represented an intervention in the complex ‘living’ system that is London’ (2010, pp. 473-474). In reality its ‘effect’ was ‘strongly mediated by existing routines, by location, by both the sociotechnical fabric of actual and potential mobility (means, modes, times etc.) and by a parallel patterning of destinations, obligations and related practices’ (Shove & Walker, 2010, p. 474).

4.5.1 London: Life without a car

In London, as a number of Auckland participants observed (Section 4.4.2), the normality of the car is starting to be significantly challenged for various reasons including the city’s complex and extensive transport system and congestion charge. Car use and ownership varies widely within London. As Figure 4.4 highlights when compared to Central London (2%), car use is significantly higher in Inner (21%) and Outer London (47%) (TfL, 2015). These differences corresponding with earlier arguments (4.3.1) are reflective of different histories of urban planning and development within London (see Barker & Robbins, 1963, 1974; Headicar, 2009). When compared with other parts of the UK rates of car use and ownership both in Inner and Outer London are significantly lower than any other major city (Morris et al., 2014).

The primary aim of this section is to reflect on how London’s habit infrastructures produce and promote what this chapter terms (public)mobility subjectivities. To do so it draws exclusively on the New Zealand migrants reflections on their experiences of living in and around the city. These subjectivities like those of automobility are recognised as being multiple and continually reproduced by habit infrastructures. In

exploring these subjectivities the section seeks to question Urry's (2004, p. 36) assertion that any post-car system is unlikely to see the 'dominance' of forms of 'public mobility' such as 'buses, trains, coaches and ships' re-established. Given the depth and extent of (auto)mobile subjectivities he may very well be correct. By focusing on the production of the (public)mobile subject this section will attempt to problematize his claim, however, that a post-car system will necessarily entail the creation of modes of 'individualised movement that automobility presupposes and has simultaneously brought into being' (Urry, 2004, p. 36).

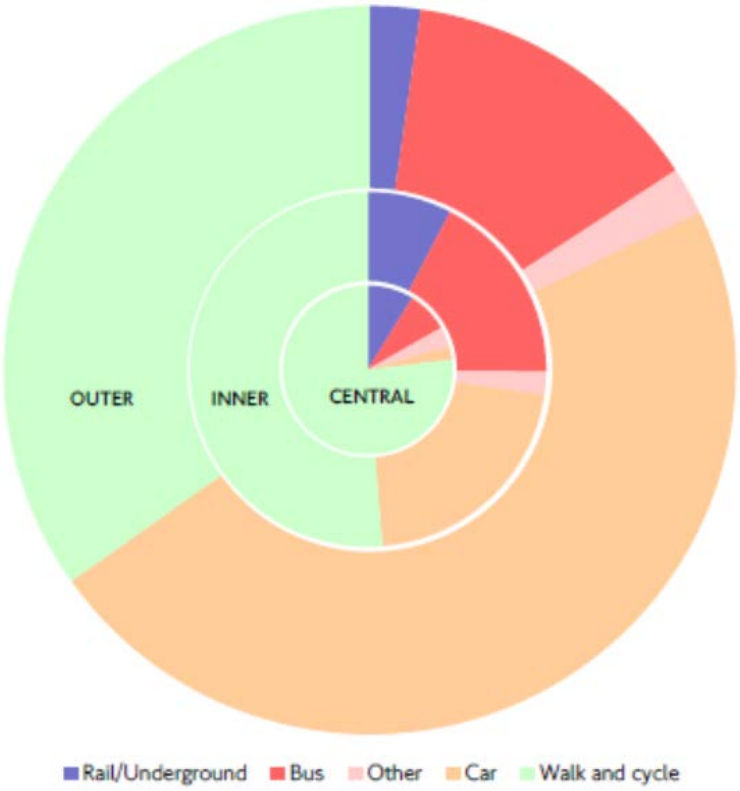

Figure 4.4. Mode share for trips wholly within Central, Inner and Outer London (average day, seven day week. 2011/12 to 2013/14 combined). Source: TfL (2015).

Earlier we saw that for some Auckland participants how their experiences of London's habit infrastructures brought into question the normality of the car (Section 4.4.2). This was also the case for Catherine who travelled by tube every day from Fulham to Kings Cross where she worked as a business administrator in a nursing agency: 'You don't realise how much you use a car until you get over here. I wouldn't dream of having a car in London'. She and others such as Adam a foreign exchange trader explained this was because the 'UK is better set up in terms of transport':

> There is a lot of national rail that you can get to every major town and suburb. Of course in London you have the tube which you can get to every nook and cranny … just about. And if you can't you can always take a bus. [T]hat is one massive difference that the UK has over New Zealand.

Despite this, Adam like many others still lamented that he misses 'having a car' and 'doing your own thing': 'Like being able to drive to the beach or the golf course or just like someone's house even. It is just ease of access. [It is] off your own back instead of having to wait for public transport all the time and go through that sort of kerfuffle'. Jane elaborated how discussions with friends and family who had lived in London had made her aware of such 'kerfuffle' before she arrived: 'commuting [by public transport to] work is just what happens and [so] you have to deal with it'. She discussed how she was starting to think about heading back to New Zealand as 'there is only so much of London that you can take' for various reasons:

> I think sometimes it is just […] all the people [you encounter every day]. I mean I really like the public transport [as] I drive at home but I hate driving and I like to be able to just sit on the train in the morning and not have to think. But then there are also times when it's like it would be nice to just jump in the car and drive 10 minutes down the road [to work] than rather having to wait for a [*extends out the word*] *bus* and that sort of thing. The weather, definitely the weather [*laughs*].

Here Jane captures how her (auto)mobile self, corresponding with the earlier discussion (Section 4.3.2), continues to shape the ways in which she understands and makes sense of her (public)mobile self. Elsewhere, she re-iterated how in contrast to her previous '10 minute drive' she now has significantly longer days as her commute adds 'an hour either side of [the working] day'. Over time she has learnt to adjust, however, to the demands of traveling in London:

> [My commute] is not too bad. It is about an hour door to door which obviously quite long compared with at home. Like I have to [travel] [a]cross London. So I have to go up to north London and I compare that to my flatmate who goes outside of London whose journey is only twenty minutes. I don't mind it I think because I've been doing it for so long and you kind of expect that you have to travel for a long time to work when you're living in London. [So] it doesn't bother me.

Above Jane observes how over time it becomes normal to travel long distances in London, it is simply what you do. In reflecting on the amount of time it took to get

anywhere Chantelle attested to the almost 'mystical' quality of London's habit infrastructures: 'Even though everything is further away somehow it seems easier. [It requires] less effort I really don't understand it'. Especially as it 'still takes a lot of planning':

> Like back home if I was talking to someone and they said come out. … I could make a decision and … be there within the hour if I had to have a shower and get ready. And it would be like 10 minutes to get there. Whereas now I'll be like I've got to have a shower and get ready and I've got to check the train times. Ok there is a train in like another 40 minutes so I'll be there in just under two hours [*laughs*].

Richard also reflected at length on how he has reorganised his life around the tube. In this context Dewey (1922a) reminds us that habits do not exist in an 'insulated compartment' and operate 'without affecting or being affected by others' (p. 38). Instead 'character', or the self, is due to the 'interpenetration of habits' (p. 38). This became apparent as Richard discussed what might be understood as the gradual emergence of his (public)mobile subjectivity or self:

> Initial[ly] [it] was quite odd when I first got here … in 2003. … I felt like [it was] very expensive … and I didn't have a car so I didn't have that freedom of owning a car. All those sorts of things whereas … now … I don't begrudge the money I spend on it. It gets me home every night. It is also very easy on the weekends I can just … jump on. … You can have five or six beers and just get on the tube and go home. You don't have to worry. You never have to leave your car. When I was in Wellington one night I'd had a few beers after work. I left my car in the carpark it was broken into. You just don't have those sorts of things. The tube is just very, very easy in that regard. [I]n winter it is freezing cold. You jump down there and it is warm and it is dry. And it is sort of the magic steel bus that gets you home and somehow it always gets you home. […].

On the one hand he has thus come to associate the tube with freedom, albeit a different sort of freedom, from the car. He went on to elaborate at the same time how London's habit infrastructures also encourage you to 'adapt your lifestyle' but in a different way to the car:

> [A] lot of the things I do is to minimise the impact of the transport on my life. So I live in a flat that is close to the tube … even though I walk further [to a less crowded station] it is to minimise the impact on me personally. I try not to ever double commute. So on a Friday night if I'm going out in central London I'm not

> going to go home first. .... I couldn't bear the thought of coming to central London on a Saturday to pick something up that I could have picked up on a Friday. [T]here is no point sitting on the train because it is half an hour, twenty five minutes each way. You are essentially wasting fifty minutes of your life. […] Where at home [i.e., New Zealand] it is very easy to just walk down stairs and jump in the car or go out. … I think that is a mentality shift that [happens] when you have to go and jump on the tube.

As Tom observed earlier (Section 4.3.2) the habit infrastructures of London often coerce you to walk rather than drive more. This was a common experience for most participants including Jean who observed how she no longer has to wear a thick coat during winter in Auckland:

> I guess in the end it just gets that little bit colder doesn't it … and because I would have to spend a lot of time outside. Walking to the tube and at the tube station on the platform…. And then I would have to walk from the tube station to school, which [was] about fifteen minute[s]. … So yeah there was a lot more time outside [whereas] the car is warm […].

Catching public transport often results in increased exposure to daily and seasonal variations in the weather (see also Chapter 5). London's climate in turn, as Maureen noted, requires one to adjust their wardrobe accordingly as well as often encouraging the purchase of one or more umbrellas:

> I've got four umbrellas now […].One that I take if I think the weather is going to be windy and wet because the weather is quite strong. And a much lighter one if it is just going to be showery. And then a big non-foldup one that I take if I'm not having to carry it with me into work or something, like if I'm just going into the shops … Yeah I've got about three foldup ones … and a non-foldup one. I've certainly got more umbrellas than I've ever had in my life now […].

London's habit infrastructures also gave rise to particular habits, which to reiterate are for Dewey certain modes of response. Just as Olivia and Beth observed in relation to driving in Auckland, the existing customs of the city played an important role in shaping one's habits. Catherine lamented the fact everyone was always in hurry and impatient: '[There is] the pushing and everyone rushing up the stairs … to get there that point one of a second ahead of everyone else'. She explained how she has started to adopt some of these habits:

> I've definitely started like I'll walk down the escalator I won't stand. Half the time I'll walk up them unless they are like those really steep ones like Hyde Park [*says while laughing*] *Corner then I'm just like I'll chill out and stand on the side.* But … I definitely have figured out where to stand on the platforms just for the commute to work because it is so hard. … [I]f I do end up having to change … to get the Piccadilly … [I] know where to stand there to get on the Wimbledon for the exit at Fulham.

Similarly, Rosie observed how you 'always stand to the right' on the escalators in London whereas you 'stand all over them' in New Zealand. She noted how like other 'Londoners' she has started to 'get a bit annoyed … when people don't get out of your way when you are trying to get off the tube':

> And you are like [*puts on a frustrated sounding voice*] 'ah these new people'. And I['ve] … probably become a bit more grumpy … I don't know if grumpy is the right word. But a bit more sort of 'why don't they know how to do things already', [*laughs*] which someone probably did to you when you first arrived.

Meanwhile, Charles and a number of other participants discussed how he purposely catches an earlier tube in the morning and positions himself on the platform where he is most likely to get a seat 'as … it is a nice[r] way to start the day than standing'. As he gets into work earlier this enables him to 'either go to the gym in the morning before work or have a coffee and relax before I start the day with the paper'. In describing his return commute he went on to suggest as a result of travelling on the tube your personal comfort zones change:

> It is just public transport. So there are just lots of people and sometimes you are very close to them and you kind of get used to that. … I guess comparing [it] with New Zealand that would feel a bit odd, people standing so close to you. But your personal comfort zone gets narrower. You can't avoid it really. You can't say I'll stay late because the rush is hour is from four thirty [1630] till eight [2000] so yeah.

In this way Charles again illustrates one of the many ways in which (public)mobility subjectivities are co-constituted by London's habit infrastructure. In some ways these subjectivities correspond with existing (auto)mobile subjectivities, for instance, in the way that they are both simultaneously a means of liberation and means of domination. Much like the car many people also hold a degree of ambivalence towards these public transport systems and the socialities they co-constitute.

4.6 Conclusion

Reflecting the growing prominence of libertarian paternalism or nudge theory within behaviour change, transport and climate change policy-making debates this chapter has sought to reveal the limits of such an approach. Libertarian paternalists as it was observed in Chapter 2 tend to understand humans as primarily irrational beings who depend on various biases to make choices and whose decisions are significantly shaped by the design of everyday settings and social norms. Focusing primarily on systems of automobility and public transport this chapter has highlighted the limitations of nudge theory in four main ways.

First, the chapter commenced by outlining how the notion of choice architecture by being attentive to the ways in which social and physical contexts shape choices advances existing individualistic understandings of the external environments of action. Nudging involves purposefully making small and inexpensive changes to these choice architectures in a way that encourages people to make better choices without simultaneously preventing any options. Examples in a mobility context it was observed include reducing the number of signs and posts and representing information in ways that encourage people to make more sustainable choices. It was argued that given libertarian paternalists focus on individual choice, emphasise on making minor and low cost changes to existing 'choice architectures' and unwillingness to restrict or regulate any choices is entirely inadequate given the large-scale transformations climate change responses demand. Another substantial limitation of nudge approaches are they neglect to consider how choices are conditioned, enabled, and in the case of automobility often made 'compulsory' (Soron, 2009, p. 181), by pre-existing infrastructures, norms and subjectivities. The Deweyan-inspired concept of 'habit infrastructures' was then introduced as a framework through which to recognise how individuals always retain the ability to act upon their social and physical environment while simultaneously being shaped or conditioned by those environments.

Second, the mobilities literature on automobility was explored as a way of demonstrating the extent to which individual decisions and preferences are always pre-conditioned by the physical and social environment or habit infrastructures. In the process the lack of politics in Urry's (2000, 2004) account of the system of

automobility was addressed following Paterson (2007) in two ways. To begin it was argued that it was necessary to understand the growth of automobility as an outcome of the role it played in supporting economic growth and, therefore, the reproduction of the capitalist system and state power. States correspondingly promoted the car through road building and developing low-density suburbs, neglecting alternative means of transport and heavily subsidising the car. Additionally, states were involved in the promotion and production of (auto)mobile subjects who were both orientated towards and valued the manner in which the car affords instantaneous, flexible and seamless movement. The promotion and production of such subjectivities was elaborated through an engagement with both work that has drawn on Michel Foucault's work on governance and governmentality and STS scholars such as Donna Haraway and Bruno Latour. It was observed Foucault's writings have been employed to explain how states have sought to proscribe, constrain and limit movement with various 'technologies of government' (e.g., architectures, road signs, rules, regulations) while also regularising it through 'technologies of the self' (e.g., driver training, motorway codes) to avoid disorder and increase productivity. Meanwhile, Haraway and Latour's metaphors of the cyborg and the hybrid figure have been used as a way of accounting for the unique identities that emerge out of the intertwining of the driver and the car. Both literatures in different ways draw attention to how the emergence and continued reproduction of automobility is both a source of liberation and domination. In this context the overlaps between Dewey and Foucault's writings on power and subjectivity and the similarities between STS scholars' arguments and his account of habit and transaction were noted.

Third, corresponding with these insights the ways in which particular policy and planning decisions have shaped Auckland's urban form and transport systems was considered. In particular, specific attention was paid to the 1955 Master Transportation Plan which resulted in the development of an extensive network of motorways. In doing so the role of the National government and certain key individuals such as Goosman and the City Engineer was emphasised in promoting roads over rail. These developments it was suggested have in part resulted in the continuation of pro-automobile policies and planning and largely ensured that automobility remains the dominant habit infrastructure in Auckland. Empirical materials collected in Auckland were then drawn upon as a way of illustrating how

these habit infrastructures tend to normalise car use in everyday life and generate locally specific habits, meanings, experiences and subjectivities. Consistent with the mobilities literature discussed earlier the compulsiveness or coerciveness of the car was re-iterated showing how people can become unaware or dismissive of alternatives or how those seeking to reduce its role in their life suddenly find themselves back behind the wheel or being both reliant upon and criticised by others.

Fourth, it was suggested that at least in some parts of, particularly central, London the normality of the car is starting to be significantly challenged. This was attributed in part to the city's complex public transport network and the introduction of the congestion charge in 2003. London, reflecting the extent and depth of (auto)mobile subjectivities, highlights how attempts to reduce car dependence will likely require attempts to restrict or regulate the car or the central elements of the system. Moreover, focusing primarily on tube users it was outlined how the habit infrastructures of London in part promote and produce (public)mobile subjectivities. Such subjectivities, like those of the automobility, it was suggested are multiple and continually reproduced but typically involve a higher degree of organisation, an increased level of preparedness for walking and being outside, the development of specific habits of (im)mobility and the adoption of different approaches for dealing with the proximity of others. The emergence of these subjectivities perhaps also indicate that counter to Urry's (2004) claims, public mobilities rather than car-like forms of individualised movement, could very well become a significant component of a post-car system.

Overall, this chapter has aimed to highlight how the Deweyan-inspired notion of 'habit infrastructures' can be used as a framework for understanding how the social and physical environments of action continually co-constitute rather than determine action. Such an account corresponds with recent scholarship in which 'the social and the technological are imagined as hybrids of human and nonhuman association, with infrastructures conceptualized as a sociotechnical assemblage, and urban social life as never reducible to the purely human alone' (Amin, 2014, pp. 137-138). This emphasis on association and (re)production which is embodied within the concept of habit infrastructures also overlaps with attempts to move beyond Urry's account of how societies simply become 'locked in' to the system of automobility (Bohm et al.,

2006; Goodwin, 2010). Instead automobility is understood as forever in a state of change as it is constantly reconstituted through various social, institutional and infrastructural conditions. Dewey's writings on habit, custom and experience which are incorporated into this framework provide a means of understanding such change as well as stability. As observed earlier given their similarities, Foucault's more critical analysis of power and power relations might help to complement and strengthen this slightly less developed aspect of Dewey's writings. The next two chapters further reflect on how such habit infrastructures mediate people's experiences of mobility in Auckland and London. This chapter has illustrated how this provides a useful way of understanding how such experiences are pre-conditioned and re-constituted by the social and physical environments of action. As a metaphor, habit infrastructures are less equipped, however, to account for the immediacy and problematic aspects of experience. As a result Dewey's (1938) notion of the situation is introduced as a way of further understanding the context for events and meanings and the relationship between habit and thought.

Chapter 5.
Breaking down the 'barriers': (Re)turning from enclosed to exposed mobility

5.1 Introduction: The 'car of the future', weather and low-carbon mobility

On Thursday 3 April 2014 a story was aired on the New Zealand current affairs television show Campbell Live about the Tango, an ultra-narrow electric sports car, designed and built by Commuter Cars (see Figure 5.1). In his preview the show's host John Campbell remarks how this car could 'revolutionise [the way] we get about town':

> Now some cities own [hire] bikes, you drive into town or you use public transport, rent a bike for an hour or two and then leave it behind and then head out again by car or bus, sounds pretty sensible. Not great in the rain and not great if you are dressed up. So what say a really tiny car could do something similar in the inner city?

The story begins with a shot of a Tango accelerating away from the camera as the female reporter observes: 'Blink and you'll miss it. It might not look like your average motor vehicle but this is the car of the future'. Viewers learn that the promise of the car lies in its small size (~99cm wide and ~257cm long), which its inventor Rick Woodbury suggests could help solve traffic congestion and parking problems in cities by reducing the size and density of cars (see Commuter Cars Corporation, 2015). Despite its size, he assures viewers it does not lack any features they have come to expect: '[W]e put in a nice stereo system. It has air-conditioning and heat. Everything you would want in a regular car'.

It is later revealed that Woodbury and the Tango have been invited to Auckland by IT engineer Toa Greening. Frustrated by the fact the $100 million spent on upgrading the South Western motorway had 'not solved anything' he thought there 'had to be a better way'. Greening has subsequently proposed setting up a car sharing scheme which would make 15,000 Tangos available for Auckland commuters to lease (which was turned down by the Auckland Council a week after the show aired). He explains

this would entail ‘work[ing] out what the price point would be for people to get out of their big full sized vehicles that are basically hauling air and to get into these smaller vehicles’. The story then transitions to footage of vehicles driving through central Auckland in the rain. Over the sound of tyres driving on wet roads, the reporter muses: ‘Because in Auckland when it rains a car suddenly seems a very attractive option’.

Figure 5.1. A front and the side view of the Tango Commuter Car, an ultra-narrow electric sports car which its makers suggest could reduce traffic congestion and parking problems in cities such as Auckland. Source: Wikimedia Commons (2015a, 2015b).

The Tango is certainly a unique and original concept. The intention of this chapter is not to explore the potential merits, however, of such a technological innovation. Instead, as elaborated further below, this chapter seeks to rethink the notion of ‘barriers’ to behaviour change by focusing primarily on commuter cycling and the weather and seasons. What is interesting about this story then is that in the space of a five and a half minute clip the weather, or more specifically, rain is mentioned twice. Initially the show’s host and later the story’s reporter insinuate that the benefit of the car over other modes of mobility such as walking, cycling and public transport is that it allows the drivers and passengers ‘cocooned’ inside to essentially travel door to door without being subject to the vagaries of the weather. ‘Regular’ cars, as Woodbury the Tango’s inventor reminds us, even allow people through the use of air-conditioning and heating to modify the car’s internal environment to their own, and in some cases others, desired comfort levels as Brian’s account now illustrates.

These ‘affordances’ of comfort were particularly important for participants such as Brian who has been commuting by car every day from Takapuna on Auckland’s North Shore to his work in Otahuhu for the last 10 years. On the first go-along he demonstrated how his Suzuki four door sedan was capable of modifying the micro-environment (i.e., temperature; air-flow) of the driver and passenger’s sides of the car separately. In doing so he once again reiterated his fondness for air-conditioning explaining that its arrival in cars ‘has been the best thing since sliced bread’. This was a point he elaborated on in the initial interview when discussing comfort:

> If [we] come back to the commute you are obviously going to turn the heater on and make sure it is warm or vice versa in the summer to cool [the car] down. … [T]hat's probably been valuable when I think about it, an important tool. [O]ver the years as modern transport has become better suited to manag[ing] your micro-environment you can feel less stressed as a result. I mean in the old days when you didn't have air conditioning in cars it got bloody hot [and] the seats were plastic, so you were hot. And so you didn't feel as comfortable. But modern technologies I think can improve you comfort state significantly.

Notably, and reflecting the sentiments expressed in the Tango story, he listed the weather along with the inadequacy of Auckland’s public transport system as one of the reasons why he does not travel to work by ‘other means’:

> Well that’s the moot point. Because given the weather, wet. Often it is wet in Auckland. It's actually easier to drive. And that's the issue with Auckland because we don't have a sound public transport system even now. It's coming. But over the years it wasn't there. And so I've always driven.

Brian’s account and the Tango story, understood through the lens of transport research and policy, tend to suggest that low carbon modes of mobility such as cycling face a number of ‘[s]eemingly insurmountable barriers, such as hilly topography, high levels of rainfall and cold winters’ (Horton, 2007, p. 133; see DfT, 2013; Parkin et al., 2007; Thornton et al., 2011).

This chapter focuses on daily and seasonal fluctuations in weather as these ‘seemingly insurmountable barriers’ are likely to present a substantial challenge in attempts to transition to a low-carbon transport system. Significantly, various studies have shown that a variety of weather conditions including rain, snow, wind, and cold and hot temperatures, are correlated with observable, and sometimes significant,

declines in numbers of pedestrians (Aultman-Hall et al., 2009), cyclists (Bergström & Magnusson, 2003; Heinen et al., 2011; Parkin et al., 2007) and public transport passengers (Guo et al., 2007). There are at least three other reasons why weather and seasons will likely remain prominent in attempts to decarbonise transport systems. First, changing weather and seasonal conditions will continue to influence the ways in which cities are experienced, negotiated and inhabited. In fact there is evidence to suggest that in many cities, including Auckland (Hennessy et al., 2007) and London (Mayor of London, 2011), increased weather variability will be become the norm rather than the exception. Second, a number of low-carbon modes of transport such as walking, cycling and public transport often involve spending a considerable amount of time outside, especially when compared to the car (Böcker et al., 2013; Section 4.5.1). Correspondingly, walking and cycling, in particular, might be understood as *exposed* rather than *enclosed* modes of mobility.

Third, as Brian illustrates above, there is often more potential for individuals to 'control' the ways in which the weather and seasons are experienced and negotiated in the car (Parkhurst & Parnaby, 2008). There is some scope for policy interventions to ‘adjust … climatic conditions’ (Parkin et al., 2007, p. 76) for public transport and air-conditioning is increasingly being introduced into many transit spaces and on buses and trains in many cities (e.g., TfL, 2014). For example, one of the bus operators in Auckland proudly displays on the side of its buses that they are ‘air-conditioned for your comfort’. Similarly, air-conditioning, or the lack thereof, on underground platforms and trains has been the source of ongoing tensions between commuters, Transport for London and politicians particularly during the summer months when temperatures soar (e.g., Churchill & Morgan, 2014). Such interventions in relation to cycling, and to a lesser extent, walking, are ‘generally not possible or practical’ (Parkin et al., 2007, p. 76). Some participants observed it was possible, however, to avoid getting wet for at least part of their journey by walking underneath store frontage or verandas designed for other purposes (e.g., reducing glare; heat) in Auckland. Meanwhile, in London and other cities with complex transport networks and associated commercial services it is possible to move between locations without spending much time outside (see Hitchings, 2010; but also Section 4.5.1). Additionally, some cities (e.g., Wellington, New Zealand) have introduced covered walkways and waiting shelters for pedestrians at intersections. It would of course be

possible to create covered cycling corridors but they are ‘often costly or otherwise impractical within many contexts’ (Parkin et al., 2007, p. 76). Transitions from high carbon to low-carbon transport systems will necessarily entail, therefore, not only a reconfiguration of infrastructure but also the way many people in car-dependent cities negotiate and experience the weather and the seasons (see also Section 4.5.1), if and when, they move to more exposed modes of mobility.

This chapter argues that framing daily and seasonal fluctuations in weather as simply ‘barriers’ to behaviour change offers little insight into how behaviour change initiatives might be designed to support exposed modes of mobility across the seasons. This is in large part because understanding weather and seasons in this way serves to reinforce particular ways of thinking about behaviour. Dewey’s writings on habit, experience and situations are demonstrated to be much more insightful. The remainder of the chapter is divided into six sections. Section 5.2 explores what various quantitative studies of the impact and effect of hourly, daily and seasonal variations in weather, and automated cycle count data from Auckland and London, reveal about cycling patterns. It is maintained while these studies highlight daily and seasonal variations in cycling volumes they provide no explanation for why these trends exist, how or why they have or might change, or how people anticipate, experience or negotiate such variations. Section 5.3 argues that if such insights are to be generated there is a need to move beyond the notion of barriers to behaviour change. Focusing on Brian’s explanation for why he continues to commute by car, theories of socio-technical systems, practices and situations are introduced as three different but interrelated ways of breaking down these barriers. The next two sections then present empirical material from interviews and go-alongs with regular commuter cyclists in order to explore how cyclists anticipate, experience and negotiate daily and seasonal variations in the weather at home (Section 5.4) and on their commute (Section 5.5). In doing so the chapter demonstrates why Dewey’s theory of situations when compared provides the best way of understanding the continuous and contingent contexts in which these experiences unfold and associated habits and meanings emerge. It concludes in Section 5.6 by reflecting on what the chapter reveals about the limitations of barriers to behaviour change.

5.2 Quantifying barriers: Cycling, weather and seasons

Various transport, health and biometeorological studies have sought to investigate the impact and effect of hourly, daily and seasonal variations in weather on levels of physical activity, activity choices, trip generation, destinations, transport modes, routes and departure times (for reviews see Böcker et al., 2013; Chan & Ryan, 2009; Koetse & Rietveld, 2009; Tucker & Gilliland, 2007). Section 5.2.1 initially focuses on the reported effects that precipitation and temperature have on reported and observed numbers of cycle commuters. These two 'variables' have been selected as they both have received considerable attention in this literature and were frequently referred to, precipitation in particular, in regular cycle commuters accounts (see Sections 5.4-5.5). Aside from these, a number of participants discussed how daylight (i.e., making sure you were 'seen'; the ability to observe and enjoy one's surroundings) and wind (concern over being 'blown off') also altered their commuting experience (see also Böcker et al., 2013). Automated cycle count data is then presented in Section 5.2.2 as a way of examining seasonal variations in cycling volumes in Auckland and London. Section 5.2.3 considers what these studies and count data reveal about barriers and why a better understanding is required.

5.2.1 Effects of precipitation and temperature on cycling

Precipitation has been reported to be negatively correlated with levels of participation in active outdoor leisure activities and positively related to non-active, indoor, home-based activities such as watching film and television, internet browsing and playing video games (Chan & Ryan, 2009; Tucker & Gilliland, 2007). Moreover, the types of trips people make and the modes they use to make them by are affected by precipitation. For example, a national travel survey conducted in the Netherlands found a significant relationship between precipitation and increases in the number of people travelling by car or public transport as large numbers of cyclists and pedestrians switch modes (Sabir, 2011). Research from Bergen, Norway (Aaheim & Hauge, 2005) and Toronto (Saneinejad et al., 2012) also report that precipitation results, albeit to a lesser degree, in a similar shift from active (i.e., walking and cycling) to motorized modes of transport.

Precipitation has been identified as one of the main reasons for not cycling in questionnaire research on active transportation from Sweden (Bergström & Magnusson, 2003), the Netherlands (Heinen et al., 2011) and Australia (Nankervis, 1999). The negative effect of precipitation on cycling has also been found in studies of observed cycle counts in Melbourne (Nankervis, 1999), Montreal (Miranda-Moreno & Nosal, 2011), Vienna (Brandenburg et al., 2007) and the Netherlands (Thomas & DeRobertis, 2013) and automated cycle counts in Auckland (Tin Tin et al., 2012), Melbourne (Richardson, 2000), Vermont (Flynn et al., 2012) and different German municipalities (Goetzke & Rave, 2011). For example, a study of automated cycle count data in Auckland found that over the course of the year rainfall contributed to a notable reduction in the hourly volumes of cyclists (Tin Tin et al., 2012). That study reported an 8% decrease in cycle movements during spring and a 13% decrease in summer and autumn with a 1 mm increase in rainfall (Tin Tin et al., 2012).

Studies have examined the effects of temperature on physical activities and mobility both directly by examining how they vary with temperature and indirectly by analysing their association with seasonality (i.e., warmer or colder periods of the year) (Böcker et al., 2013). In a European context, studies have observed that temperature in comparison to precipitation typically has less of an effect on travel behaviour (Cools et al., 2010; Sabir, 2011). Despite this both studies still report that walking and especially cycling are positively correlated with temperature and car and public transport use are negatively correlated. Most cycling studies also report increases in cycling rates during warmer weather (Bergström & Magnusson, 2003; Brandenburg et al., 2004; Hanson & Hanson, 1977; Keay, 1992; Nankervis, 1999; Richardson, 2000). Some studies have reported that higher temperatures (c. 25-30 °C) can also result in a reduction in cycle volumes (Keay, 1992; Miranda-Moreno & Nosal, 2011; Richardson, 2000). Miranda-Moreno and Nosal (2011), for example, found that combined with high humidity, temperatures in excess of 28 °C had a negative effect on cycling in Toronto.

Review studies of physical activity have revealed that people undertake more physical activities in summer than winter (Chan & Ryan, 2009; Tucker & Gilliland, 2007). Transport studies also detect seasonal trends in cycling. For example, Müller

et al. (2008) in their study of travel-to-school mode choice in Dresden, Germany, found there was a threefold increase in cycling during summer compared to winter, which coincided with less students travelling by car or public transport. Similar seasonal cycling patterns have been reported in Australia (Nankervis, 1999) and Sweden (Bergström & Magnusson, 2003), and as Section 5.2.2 now details, Auckland and London. Importantly, these studies also highlight that there are often higher average cycling levels in cities that are windier, colder and wetter than those that are drier and hotter which indicates that although weather may shape underlying patterns it is not a determining factor (see Böcker et al., 2013; Sabir, 2011).

5.2.2 Seasonal variations and increases in cycle volumes in Auckland and London

Auckland Transport (AT) (2014) and Transport for London (TfL) (2013) both collect cycle count data as a way of measuring the impact of cycling campaigns and infrastructure investment. This data, which is made publicly available, is collected automatically at nine sites in Auckland and sixty sites on roads designated as TfL Road Network (TLRN) in London, which equates to approximately 5% of roads. These data sets are limited and not representative, therefore, of overall rates of cycling across Auckland and London. They do provide some indication of the relationship, however, between cycling and the seasons in each city. More significantly, this data suggest as rates of cycling increase in both cities there is a corresponding increase in the number of 'year round' cyclists.

Seasonal variations in cycling in Auckland

The relationship between the total number of recorded bicycle movements in Auckland and the seasons for the years 2011 to 2013[10] is depicted in Figure 5.2. It highlights two main trends. First, there has been a gradual increase in cycle movements each year over this period (see also Table 5.1). Second, compared to other seasons there is a reduction in the number of movements made by bicycle during winter and an increase during summer and autumn. Moreover, the extent of seasonal and yearly variation in the data also exemplifies the contingent nature of

[10] As the seasons do not align with the calendar year summer includes one month from the previous year. For example, the period summer 2011 begins in December 2010 and finishes on February 2011.

cycling in the city. The data demonstrates that there has been a steady increase in cycling over the period (see Table 5.1). More importantly, this increase has coincided with a yearly increase in the number of cycle movements during winter, which suggests there has been an increase in the number of 'year-round' cyclists (see Figure 5.2).

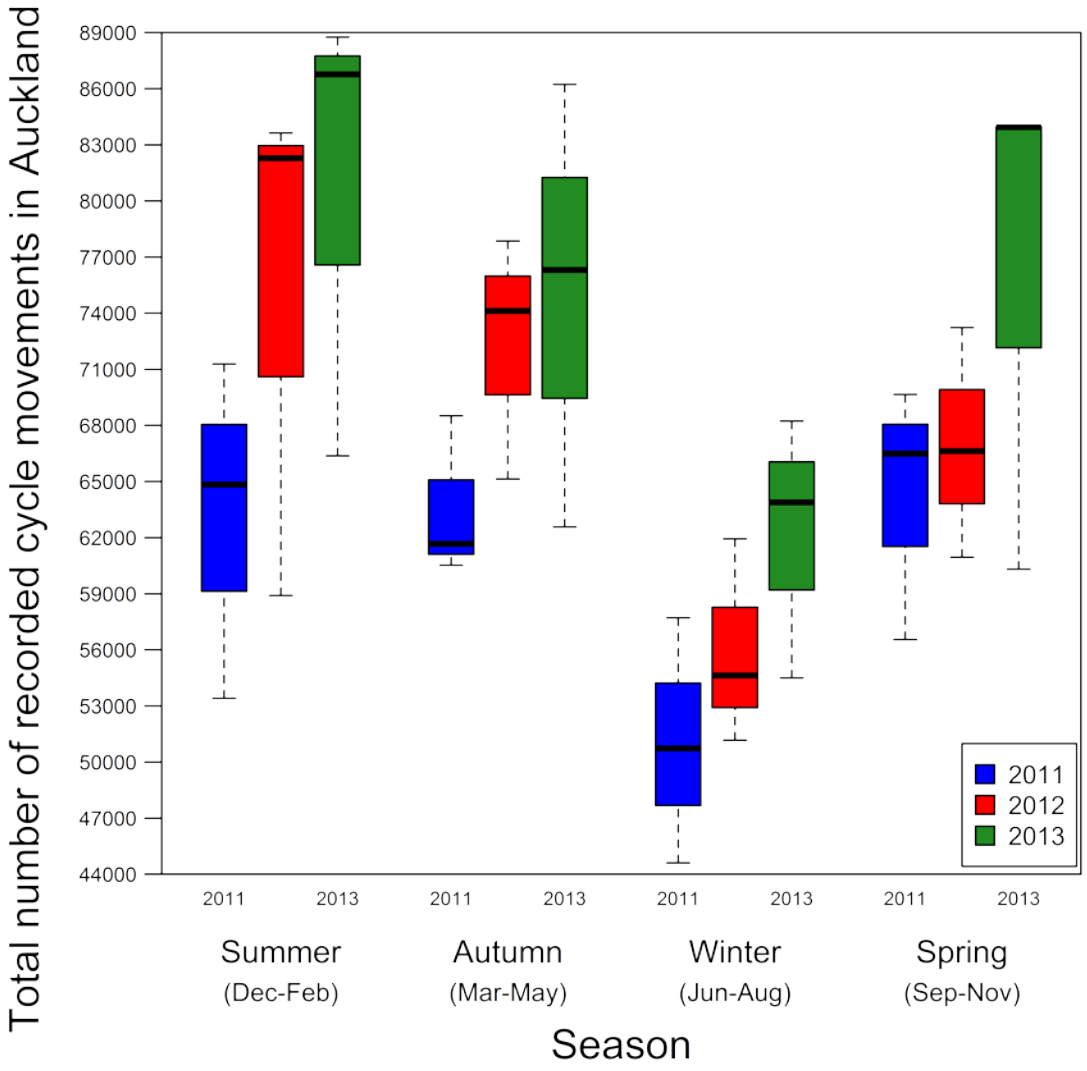

Figure 5.2. The relationship between total cycle movements recorded at nine sites in Auckland and the seasons for the years 2011-2013. The counts are collected monthly by telemetry from automatic cycle counters located at nine sites in Auckland. The horizontal line in each of the boxes shows the median value for the season that year, the bottom and top of the box show the 25 and 75 percentiles and the whisker shows 1.5 times the interquartile range of the data.

Table 5.1. Summary of the number of cycle counts recorded by automatic counters located at nine sites in Auckland for the years 2011 to 2013.

Year	Total Movements
2011	726023
2012	810521
2013	881877
Overall	**2418421**

Seasonal variations in cycling in London

TfL's (2013) *Travel in London* annual report presents a summary of cycle count data collected on the TLRN. Based on this data the report concludes that 'weather is a key factor in driving cycle demand' as rates of cycling peak in summer and are lowest in winter (TFL, 2013, p. 48). This relationship is illustrated in Figure 5.3 which presents indexed[11] pedal cycle counts for each season between 2010-2013. Indirectly, Figure 5.3 also highlights that there has also been a steady increase in cycling over this period (see Table 5.2). TfL observe that cycle flows closely reflect average daytime temperatures with the 'highest flows in each year corresponding to the warmest months and lowest flows corresponding to the coldest months' (2013, p. 49).

Table 5.2. Summary of index cycle counts recorded by automatic counters located at sixty sites on Transport for London Road Network (TLRN) roads for the years 2010 to 2013.

Year	Indexed Cycle Counts
2010	3199.2
2011	3536.4
2012	3653.6
2013	3733.7

[11] The bicycle pedal counts are presented as indexed flow relative to a baseline of March 2000, which is represented as a flow level of 100 on the index.

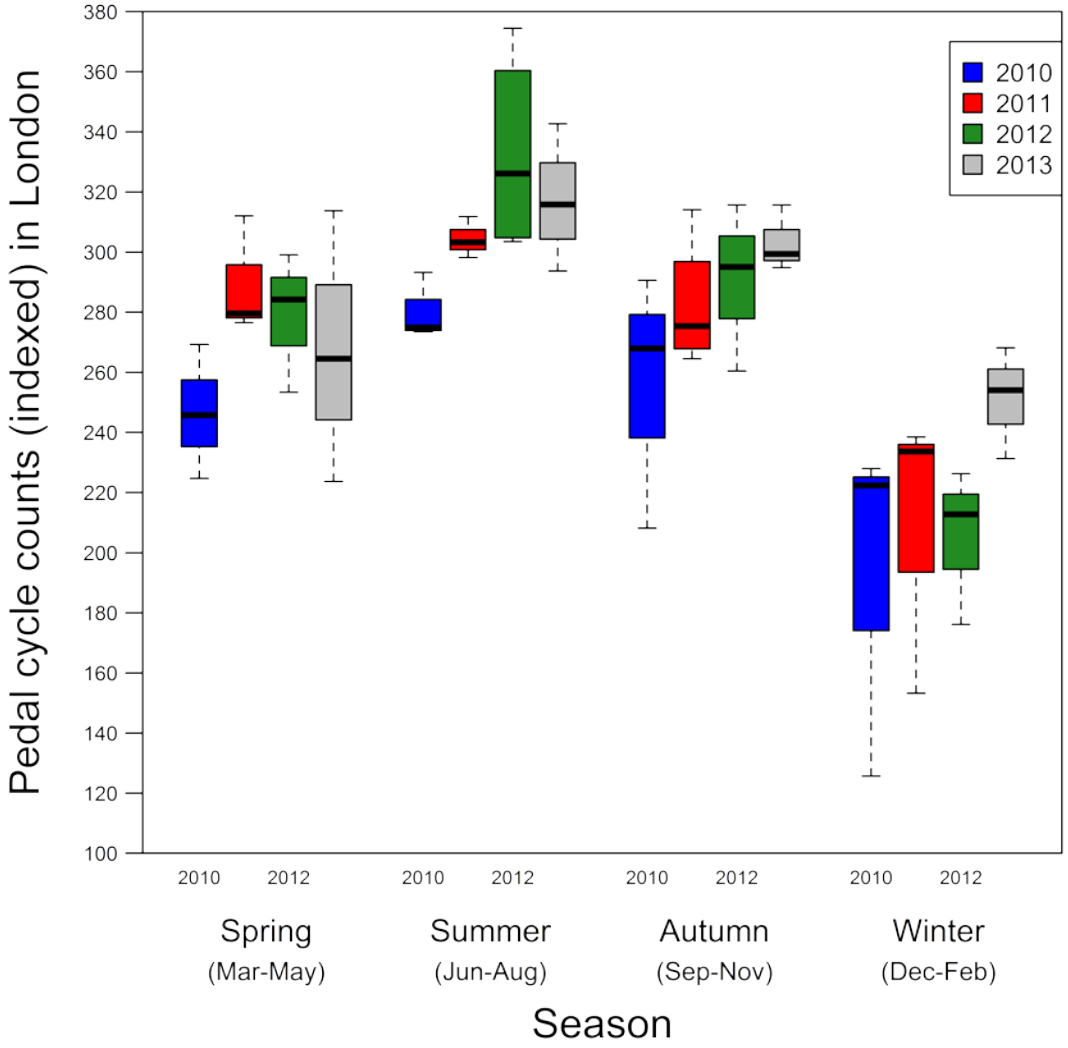

Figure 5.3. The relationship between indexed bicycle pedal counts on Transport for London Road Network (TLRN) and the seasons for the years 2010-2013[12]. The pedal counts are collected monthly by telemetry from 60 automatic cycle counters and are presented as indexed flow relative to a baseline of March 2000, which is represented as a flow level of 100 on the index. The horizontal line in each of the boxes shows the median value for the season that year, the bottom and top of the box show the 25 and 75 percentiles and the whisker shows 1.5 times the interquartile range of the data.

The relationship between rainfall and cycle flows is less apparent as particularly wet periods during winter tend to coincide with decreases in average temperature (TFL, 2013). Furthermore, heavy rainfall during warmer periods only results in minor decreases in cycling (TFL, 2013). The ambiguity of this relationship is attributed to the fact rainfall 'tends to be more variable and less predictable than temperature on any given day' (TFL, 2013, p. 50). Consequently, as the 'decision to cycle is taken early in the day' rainfall in the afternoon or evening is 'unlikely to impact

[12] As the seasons do not align with the calendar year winter includes two months from the following year. For example, the period winter 2011 begins in December 2010 and finishes on February 2011.

significantly the decision to return home by bicycle' (TFL, 2013, p. 50). Notably, and corresponding with the trend also seen in the Auckland data, it is observed that both 'seasonal peaks and seasonal troughs have risen' which indicates that the 'number of 'year-round' cyclists is increasing' (TFL, 2013, p. 49).

5.2.3 Understanding seasonal cycling habits

The various transport, health and biometeorological studies and cycle count data from Auckland and London highlight overall how variations in precipitation, temperature and other weather and seasonal variables, result in observable and sometimes significant declines in rates of cycling. In researching and revealing such trends these studies may indirectly help to reproduce existing policy narratives that high levels of rain and cold winters are one of a number of apparently insurmountable barriers to cycling. Tin Tin et al. (2012, p. 7), for example, in concluding their paper on the temporal, seasonal and weather effects on cycle volumes observe that it 'is likely that a relatively high rainfall in Auckland discourages people from cycling'. In a similar manner, Horton (2007) has illustrated how ironically the 'fear of cycling' is continually reproduced through various initiatives aimed at making cycling safer. Road safety education programmes, helmet promotion campaigns, and the development of 'new cycling spaces', he suggests constantly re-construct cycling as an 'inherently dangerous' form of mobility (Horton, 2007, p. 145). In his view 'as long as cycling remains something to fear, it remains a marginal and marginalised practice' (Horton, 2007, p. 147). Consequently, he argues that cycling promotion schemes need to recognise their role and develop 'more effective strategies' if cycling is to no longer remain 'a practice to be feared' (Horton, 2007, p. 137). This sentiment might equally apply to research which continues to examine and frame weather and seasonal conditions as barriers to sustainable transport.

These studies simultaneously demonstrate that the impact these fluctuations have on cyclists varies within the same city, as well as, different cities, regions and countries. In doing so they indicate that daily and seasonal variations are by no means a universal barrier. The cycle count data from Auckland and London highlights that as rates of cycling in both cities have increased the numbers of year round cyclists has also risen. This suggest that at least for some cyclists these 'barriers' might over time

fade or disappear. Although count data and other typically quantitative studies are capable of revealing such trends, as Tin Tin et al.'s (2012) rather speculative conclusion about cycling and rainfall in Auckland indicates, they are not sufficiently able to explain how or why these trends have come to exist and why they might change. For example, they provide no insight into: 1) why or in what ways for instance precipitation matters; 2) why temperature rather than rain may have less of an effect on travel behaviour; 3) why the number of year round cyclists might be increasing in Auckland and London; or 4) how people anticipate, experience and negotiate changing conditions alongside a range of other everyday routines and practices. These failures can be attributed to the way in which these studies, alongside other psychological and economic accounts, consider the 'internal' and 'external' environments of action in isolation and rather static and fixed ways. As a result they do not sufficiently capture the complexities of action. Correspondingly, a better understanding is required to challenge the relation between action and barriers.

5.3 Breaking down the barriers

This chapter commenced by reporting a story about the Tango commuter car which like a 'regular' car allows drivers and passengers to travel between home, work and various other destinations largely without being exposed to the vagaries of the weather. Fitted with air-conditioning and heat it actually enables one to control and alter the internal environment of the car to suit their personal comfort. This story, and subsequently Brian's account, demonstrated how the continued use of the private car is in part justified on the basis of daily and seasonal weather variations, especially rain. In much transport research and policy such justifications often result in the assumption that rain and cold temperatures are and will continue to present formidable barriers to low carbon modes of mobility such as cycling. It has been argued that understanding these external factors as barriers is severely problematic as it results in a failure to recognise how individual action and thought is always embedded in broader social, cultural, political and material contexts (Sections 5.2.3). The remainder of this section explores how Brian's reluctance to travel by public transport might be reinterpreted through three different approaches which move beyond simply understanding the motivators of or barriers to action.

5.3.1 From barriers to practices and socio-technical systems

A number of scholars adopting socio-cultural approaches have sought to gain a better understanding of how individuals consume (read, ignore, reject), use or act upon environmental information. Some of this work has examined how individuals appropriate specific arguments, discourses or 'commonplaces' (Myers & Macnaghten, 1998) and 'how and why particular debates are mobilised in certain contexts and to what political ends' (Burningham & O'Brien, 1994; Hobson, 2001, p. 202). Hobson (2001), for example, has explored the role the voluntary information campaign *Action at Home*, administered by the charity Global Action Plan UK, had on encouraging individuals' to make shifts towards more sustainable lifestyle practices. She argues that such campaigns are informed by a rather 'narrow conception of the 'environment'' which fails to recognise 'the place of 'environmental' issues in lay discourses and practices' (p. 206). This corresponds with the rather 'implicit assumption' that underpins such initiatives; the ultimate goal of all individuals is to make sustainable lifestyle changes but at present they are unable to do so because of a range of 'barriers to action' (p. 206). Hobson (2001, p. 203) disagrees with these sentiments instead following Billig (1987) arguing that they are best understood as an embodied 'set of discursive practices' which individuals use to deal with social controversies and to make sense of information associated with environmental problems. Such a reframing she suggests allows an appreciation of 'why actions and awareness are not always related' (Hobson, 2001, p. 202).

Accordingly, the weather and Auckland's inadequate public transport system are not necessarily 'barriers' that prevent Brian from travelling on sustainable transport. Instead they are arguments which he mobilises as a way of justifying his continued car use while avoiding any social controversy. This became apparent when upon further questioning he rather defensively provided additional reasons for why he continues to drive:

> My wife … takes the bus into the city from where we are. It is easier because then there [are] no parking issues. But for me because of … the location [I] would have to change buses [*trials off slightly*]. I think it is a mindset. You know it comes back to the Kiwi mindset we've always driven therefore we'll always drive. But … if we

> went to New York or London you just take the tube because it's available and it's easy to work and you go from there.

Such socio-cultural approaches, therefore, provide a useful way of moving beyond rather simplistic and individualistic understandings of barriers to action. Reflecting their focus discursive practices, such approaches provide no insight into how physical, infrastructural and institutional arrangements contribute to car-dependent lifestyles, and by implication social norms, or as Brian terms it the 'Kiwi mind set'. Following Spaargaren and van Vliet's (2000), such scholarship can help to provide insights into how people's everyday practices are shaped by their discursive and practical consciousness. Equally, they emphasise like other socio-technical and practice theorists the importance of understanding how these practices are always embedded in 'collective socio-material systems' (2000, p. 64) or 'socio-technical environments' (p. 55). This assertion is now explored in relation to what Urry (2004, p. 32) describes as the 'system of automobility'.

Section 5.2.3 argued that although various quantitative studies highlight how cycle volumes positively and negatively fluctuate with daily and seasonal variations in weather they are incapable of explaining how or why these trends come to exist or change in a given time or place. This is because like other research informed by individualistic understandings of action such scholars typically assume these results support the assertion that the weather is one of many internal or external motivators or barriers which either drive or prevent people from choosing to cycle to work. The internal (individual) and the external (social, cultural and material) contexts of action are presumed to be separate entities which shape and influence behaviours (Section 2.3.3). Scholars drawing on various strands of science and technology studies (STS), in contrast, emphasise in different ways how the internal and external contexts of action, or rather 'the social' and 'the technical', co-evolve or emerge simultaneously (Section 2.4). The car and other technologies, artifacts and things 'shape and are shaped by social, economic and political considerations', they are socio-technical systems (Geels, 2005b; Shove, 2003, p. 46) or institutions (Bohm et al., 2006).

From this perspective, it is inadequate to understand the weather and Auckland's 'poor' public transport system as external barriers which prevent Brian from making more sustainable transport choices in at least three ways. First, his actions like any

other individuals are always 'embedded in a socio-technical context' (Strijbos, 2006, p. 366), in this case a system or 'regime' of automobility (Bohm et al., 2006), which structures, enables and often makes necessary, what behavioural scientists understand as, his '(ir)rational choice' to drive to work. It would not be possible for Brian to drive without a diversity of other elements which 'inter-relate in structured and systemic ways' including 'road and traffic system infrastructures; fuel infrastructures from oil companies to petrol stations; car manufacture, maintenance and distribution networks' (Geels, 2005; Shove, 1998; Watson, 2012, p. 492). Simultaneously automobility has reorganised 'how people negotiate the opportunities for, and constraints upon, work, family life, leisure and pleasure' (Sheller & Urry, 2000, p. 738).

Second, his 'preference' for driving is also shaped by popular, academic and political discourses and meanings which have co-evolved with this system (see also Section 4.3). The 'Kiwi mind set' that Brian describes is reflective of a more universalised social ideology (Gorz, 1973) which holds that driving a car embodies the 'ideals of freedom, privacy, movement, progress and autonomy' which in turn justify its 'principal technical artifacts' including cars, roads, and motorways (Bohm et al., 2006, p. 3; Urry, 2004). This 'unique combination' and interlocking of the social and the technical elements have generated and reproduced 'the 'specific character of domination' of automobility across most societies across the globe' (Sheller & Urry, 2000, p. 738). In doing so they contributed to the 'normalisation of driving and car ownership' (i.e., 'what *normal* people do') thereby producing and legitimizing 'the construction of alternative modes' such as public transport and cycling as 'deviant' (Bohm et al., 2006, p. 8, original emphasis).

Third, it 'entails a phenomenology, a set of ways of experiencing' (Bohm et al., 2006, p. 3) or 'inhabiting' the world (Thrift, 2004: Urry, 2006 #1882), that of a car-driver hybrid (Urry, 2000) or assemblage (Dant, 2004). For Urry (2000, p. 59) this hybrid has reconfigured civil society by giving rise to unique ways of 'dwelling, travelling and socialising in and through, an automobilised time-space'. 'Dwelling at speed', for example, 'car-drivers lose the ability to perceive local detail, to talk to strangers, to learn of local ways of life, to stop and sense each different place' (Urry, 2006, p. 23):

> Sights, sounds, tastes, temperatures and smells get reduced to the two-dimensional view through the car windscreen and through the rear mirror …. The environment beyond that windscreen is an alien other, kept at bay through the diverse privatizing technologies incorporated within the car. These technologies ensure a consistent supply of information, a relatively protected environment, high quality sounds and increasingly sophisticated systems of monitoring. … And as cars have increasingly overwhelmed almost all environments, so everyone is coerced to experience such environments through the protective screen and to abandon streets and squares to these omnipotent metallic iron cages (p. 23).

Cars have not always been inhabited in this way. Automobility, up until the Second World War, entailed 'inhabiting the road' as the car-driver was 'part of the environment through which the car travel[ed]' and not 'insulated from much of its sensuousness' (Urry, 2006, p. 23), including the vagaries of the weather, it remained a form of 'exposed' mobility.

A range of technologies have subsequently enabled the car to become 'a world in itself', an enclosure (Thrift, 2004, p. 51). 'Sound' and 'video systems, climate control, better sound insulation, ergonomically designed interiors [and] easy recall of certain memories' have conspired 'to make the car into a kind of monad which increasingly refers to the world outside itself via heavily intermediated representations' (Thrift, 2004, p. 51). These sentiments are certainly apparent in Brian's earlier remarks regarding, for instance, how air-conditioning has become an 'important tool' which has allowed him to control and manage his car's 'microenvironment' and 'improve' his level of comfort. The car, following Shove (2003), might be understood as another site where resource intensive standards and expectations of comfort, cleanliness and convenience have emerged and are being (re)produced as part of everyday social practices such as driving. Moreover, it is likely the car and changing work and leisure patterns which have resulted in many people in the Global North spending over 90% of their time within buildings (Höppe, 2002; Kosonen & Tan, 2004), are currently and will continue to fundamentally change the ways in which we understand, encounter and experience weather. In this way the weather should not be understood as an external barrier *per se* but as one of many natural events which are increasingly being mediated and sensed through screens (Morse, 1998) or windows and removed from 'the conventions of normal practice' (cf. Guy & Shove, 2000, p. 70). Many people are increasingly living

'enclosed' rather than 'exposed' lives. The next section introduces Dewey's theory of situations as a means through which to understand the immediate and mediated aspects of these lives.

5.3.2 From practices and socio-technical systems to situations

Situations 'provide the context for understanding events and meanings' (Cutchin, 2008, p. 1561), including those associated with the weather and seasons, and are illustrative of the 'lived qualitative unity of continuously developing experience' (Alexander, 1987, p. 105). For Dewey (1938) situations have a number of specific dimensions including:

> they are open-ended, durational-extensional-existential affairs not to be confused with 'surroundings'; they are both immediate and mediated by human thought and action; they have problematic aspects for those experiencing them, and; although they are unique, but as parts of a field, they are connected to other situations (see also Alexander, 1987, pp. 106-110; Cutchin, 2008, p. 1561).

Experience for Dewey always takes place in situations, which 'are individuals … each one is just that one and no other and as such will never be repeated. Yet situations are not atomic; they have relations with each other and with the past and future; there may be traits appearing in a uniquely qualified way in one situation which appear in a differently qualified way in another' (Alexander, 1987, p. 113). He understands each situation as 'a process, an activity, which always has potentialities to act and be acted upon' (Alexander, 1987, p. 114). Characterised in this way situations are 'organic wholes' which have 'both an immediate aspect and a mediated one, an actual and a potential side, a radically unique and a formal or general character' (Alexander, 1987, p. 114). Following Dewey weather and seasons rather than being barriers are *always* part of an organic whole – a situation. This is not to suggest that they do not impact or act upon individuals. On the contrary they are undergone or had, enjoyed or suffered, in experience. The ways in which they are had or undergone is mediated in part by habits and meanings. Situations might equally be understood, therefore, as the body-mind-world assemblage from which habits and meanings continually emerge (cf. Venn, 2010). 'Habits enter into the *constitution* of the situation; they are *in and of* it, not, so far as it is concerned, something outside of it' (Dewey, 1911, p. 552). For Dewey (1922a) habits are ways

of incorporating and using the environment (Sections 2.6 and 4.2.1). In Brian's case it is the car habit which 'makes it possible for car, driver, road, signs, passengers, traffic rules to merge into a seemingly effortless whole and what underpins the routine use of cars to access places' (Schwanen et al., 2012, p. 526). Thus it is Brian's car habit and his specific situation or body-mind-world assemblage including his air-conditioned four-door Suzuki sedan, that continue to mediate his experience of daily and seasonal fluctuations in the weather.

Meanings 'reflect the complexity of situations as both immediate and mediate, as qualitative and relational' and are derived from the use and interpretation of things (Alexander, 1987, p. 118). The notion of the 'mind', which Dewey understands as a range of dynamic processes including 'intellectual, affectional, volitional, and purposeful' activities which shape the way we interact with the world (Hildebrand, 2008, p. 31), is central to his account of meaning. An individual's mind, he asserts, only 'emerges once a merely sentient awareness of qualities' (Hildebrand, 2008, p. 32) can be 'taken up into a system of signs' (Dewey, 1929a, p. 259) through language:

> Without language the qualities of organic action that are feelings are pains, pleasures, odors, colors, noises, tones, only potentially and propleptically. With language they are discriminated and identified. They are then 'objectified'; they are immediate traits of things (Dewey, 1929a, pp. 258-259).

The mind is, therefore, 'at least the ability to adapt and adjust to problems using language, and even more, the ability to create, plan, and project one's vision of the future' (Hildebrand, 2008, p. 32). Dewey in this manner draws a distinction between 'consciousness' and the 'mind'. Following William James he understands consciousness as a 'stream of thought' including the 'inconsequential trifling with mental pictures, random recollections, pleasant but unfounded hopes, flitting, half-developed impressions' (Dewey, 1986, pp. 113-114). Simultaneously, he also suggests it 'denotes meanings actually perceived, awareness of objects: being wide-awake, alert, attentive to the significance of events, present, past, future' (Dewey, 1929a, p. 298). These 'bright moments' of consciousness 'are made possible *because* of their context' (Hildebrand, 2008, p. 32, original emphasis) or rather 'an organized system of meanings of which we are not at any one time completely aware', in other words, a mind (Dewey, 1929a, p. 305). Moreover, given the important role that

language plays in its development the emergence of the mind always presumes a social context; ‘conjoint or shared undertakings’ (Dewey, 1929a, p. 299) which entail ‘association, communication, participation’ (p. 272), the ‘sort we describe as culture’ (Tiles, 2003, p. 64).

It is the ‘double function of meaning, namely signification and sense’ which ensures the mind (intellect) is present in a situation (Dewey, 1929a, p. 261). Sense is ‘the meaning of the whole situation as apprehended’ (Dewey, 1929a, p. 261). Meanwhile, signification ‘involves using a quality as a sign of something so that it may serve as a ‘clew’ to the sense of a situation’ (Tiles, 2003, p. 60). Habits and a sense for a situation ensure the ‘flood of action … overrides all but the most considerable obstructions’ as it ‘flows [too] forcibly and rapidly in one direction to be checked’ (Dewey, 1929a, p. 314). Even if understood as ‘considerable obstructions’, fluctuations in weather or seasons do not stop action, as the notion of a ‘barrier’ tends to imply, but only temporarily interfere or inhibit its directional ‘flow’. These ‘‘moment[s]’ of hesitation’ force us to ‘stop and think’, observe, recollect and anticipate before redirecting or intensifying a particular course of action (Dewey, 1929a, p. 314). It is during these ‘problematic’ or ‘undetermined’ moments that the weather or the seasons is distinguished as a functional part of a situation, as an object, an event ‘*with* meanings’ (Dewey, 1929a, p. 314). They have discriminated qualities of a qualitative situation because they have ‘meanings which go beyond the moment or the immediate situation ’, they ‘are relations’, distinguished because of their use or potential consequences (Alexander, 1987, p. 115; Tiles, 2003). For Brian his enclosed and air-conditioned car allows him to avoid the vagaries of the weather, which as Sections 4.4 and 5.1 highlighted perhaps reflect broader social customs and meanings. Despite this the weather can still become problematic but its specific manifestation reflects the way in which the car mediates these situations. For example, heavy rain often causes car-drivers to reduce their speed, drive more carefully and sometimes alter their route to avoid associated increases in the number of cars on the road.

Deweyan pragmatism shares a number of similarities with the socio-technical and practice literatures (Section 2.6). All three approaches recognise that individual action is always embedded and evolving in relation to particular social institutions

and arrangements and material or physical settings. Despite this it was argued that socio-technical and practice approaches in stressing the importance of collective meanings tend to underplay the dynamic ways in which individuals make sense of and negotiate these meanings in everyday life. Unlike Dewey, they fail to distinguish 'between the focal meaning ('consciousness') and the context of meanings ('mind')' (Hildebrand, 2008, p. 34):

> Consciousness is thinking-in-flight, an ever-reconfiguring series of events that are qualitatively felt as they transform experience at its most urgent. If mind is the 'stock' of meanings on hand, then consciousness is the realizing and reconstructing of those meanings so that experience can be redirected, readapted, and reorganized. It is 'that phase of a system of meanings which at a given time is undergoing redirection, transitive transformation' (Dewey, 1929a, p. 308). Consciousness is the dramatic aspect of mental life, with mind providing the indispensable 'back-story' or narrative (2008, p. 34).

Moreover, they do not recognise habits as a disposition or capacity which in turn shapes the self or subjectivity. Focusing on how cyclists anticipate, experience and negotiate daily and seasonal variations in the weather the next two sections demonstrate how Dewey's theory of situations helps to illuminate how experiences unfold and associated habits and meanings emerge in the continuous and contingent social and physical environments of action.

5.4 Getting ready in the morning

There was a great deal of variation in terms of how people got ready in the morning, what it involved, and in a number of instances, a specific individual's routine. This section focuses on the routines of two regular cycle commuters. Rather than being 'representative' the intention is to use these two accounts to help draw out the ways in which the weather and seasons are always part of a situation which is both immediate and mediated by habits, consciousness and meanings. To provide some additional context these are also at times compared and contrasted with the habits and experiences of other research participants.

5.4.1 Mixing up the morning and dressing for the weather and work

Britta lives with her partner in a rented apartment in the London suburb of Hampstead and cycles almost religiously to her workplace in Farringdon, where she works as a town planning consultant: 'I always cycle […] even if it is snowing or sub-zero temperatures, I cycle in any conditions'. A German expatriate in her late-thirties, her wake up and departure times are reasonably fluid: 'six fifteen [0615] would be the earliest and seven fifteen [0715] the latest, […] I don't like being rushed in the morning'. She decides when to wake up the evening before taking into account whether she is going to go swimming and how busy she is at work. Her morning routine also entails some degree of variability:

> After getting up the first question is do I shower immediately or do I shower after breakfast? And that can switch around depending on how I feel. Also sometimes I go swimming in the morning. So then that affects the morning routine as well because I would be [having] less breakfast and clearly I shower then at the swimming pool. So say I have first breakfast, well I think the first thing I actually do is feed the cats [*laughs*] and then I go [back to bed for] a little bit […] again and think about what I'm going to wear because by that time I've looked out the window. [W]hen I've decided what I'm going to wear I'm going to get up and make breakfast which is cooked breakfast. I tend to read the newspaper while I eat. Yeah then [I] have my shower [and] get dressed. Pack my bag, pack my lunch, [and] I think the last things I collect is keys. Remind [myself if] I've got my cycle lights on [my bike], cycling gloves, say goodbye [to my partner] if she is already around, sometimes she has morning shifts and is already gone, and … then collect my bike and off I go [*laughs*].

Deciding what to wear for Britta involves more than simply putting on a t-shirt and shorts and ironing a shirt for later (see Section 5.4.2). Instead it largely hinges on the fact she does not want to get completely changed at work:

> Ah … [getting dressed] that's actually an interesting one because: a) I need to decide, well is it going to rain or not, and [b)] how pretty do I have to be for work. […] [So] I have various combinations which are slightly weird. I prefer not to get changed when I arrive at work [and] because often I do things on the way back I don't want to be in cycling clothes. [M]ost of the time it is jeans. But if there is a risk of a bit of rain I don't have mud guards [so] I know I will get wet. So

> sometimes that [prompts the] decision […] to wear a skirt [which] I can put my cycle trousers over […]. So all I need to is strip down the cycle trousers [and then] I don't have to get properly changed, if that makes sense.

Rain, as she goes onto explain, is 'a key consideration' which she assesses during 'the time [she has] got up [to] feed the cats and go[ne] back to bed'. Her smartphone provides a sense of the 'forecast for the day' and whether it is 'going to rain in the afternoon or not and the likelihood of it'. Prior to this looking out the window of their third floor apartment also gives her a 'handle' on the weather:

> [G]iven we've got this fantastic view I get a good handle on what the weather is. You [can see] the shape of the clouds. You know [how] you can read weather a little bit? So you know certain clouds might get rainy or whether it is going to turn or [if] it is already raining anyway and what type of rain it is. [That] is also a consideration because the other thing is I have another bike which has […] got mud guards but it is slower. It is sort of my shopping bike. [So] sometimes if there is just a little drizzle where I think I might get away not wearing any waterproofs then I would choose that bike. But whereas if I have to wear waterproofs anyway or things that have to get properly wet then I still ride the road bike [which is faster].

These last two excerpts illustrate how daily variations in the weather have become folded into Britta's morning routine and a series of related decisions such as getting dressed and which bicycle to ride. Although we see that the weather or more specifically rain, is a primary concern it is by no means the only matter she considers while getting dressed. Other aspects of her subjectivity, which are reflective of the contextually embedded and embodied nature of not only mobility but also work and leisure, are equally apparent.

Britta mentions that on some occasions such as client meetings there is a requirement to look 'pretty'. A 'couple of [pairs] of heels [are kept] under [her] desk' especially for such events as they are 'not so nice to cycle in'. Importantly, feminist geographers remind us how 'culturally embedded economic practices, workers, and organizations are embodied in dominant notions of masculinity and femininity' (e.g., Halford & Savage, 1997; Leidner, 1993; McDowell, 1997; Oberhauser, 2000, p. 71). The need to look 'pretty', as McDowell (1997) suggests, following Butler (1990, 1993), is reflective of the way gender and sexuality are continually *performed* or enacted in the workplace. In her analysis of cultural capital in London, she discusses

how women are severely limited in terms of the ways they can present themselves. This is because there is no such thing as 'neutral fashion' for women, as clothes always 'send a message' as they 'could have been different' (p. 145; Tannen, 1994). According to McDowell (1997, p. 31) 'socially sanctioned gendered identities and ways of behaving are reinforced and policed through a set of structures that keep in place dominant and subordinate social relations'. These 'mechanisms include not only institutional force and sanctions from above' like dress codes but also as Britta intimates 'self-surveillance' (McDowell, 1997, p. 31).

It became apparent in discussions with other female participants these conventions varied between workplaces and occupations (see also Leidner, 1993; McDowell, 1997). Julia who worked as a document restorer within a research institute observed, 'we don't have to dress like in suits or anything like that. So I just tend to wear the same kind of thing [and] don't think about it much'. In contrast, Nicola who worked at an English Language school suggested although 'nothing is written down' you would be told if it was 'not appropriate' but that 'certain people' could 'get away [with] stuff' and others could not. Meanwhile, Ellie said in some instances, unlike Britta, she would not cycle on days when she had a meeting or presentation as she felt could not 'wear a dress on biking days because then you have to get completely changed when you get to work which is a total hassle'. Despite such variations, these accounts do illustrate how the simple task of getting dressed for work is still influenced, at least to some degree, by 'dominant norms and culturally embedded social practices in society' (Oberhauser, 2000, p. 72).

This equally applies to Britta's desire to not be 'in cycle clothes' on days when she has after-work plans or activities such as socialising with friends. This became apparent when elsewhere she talked in more detail about cycling in different weather conditions, which again reflect broader cultural norms:

> I [have a] real sense of frustration [that] there is no rain gear that looks good. [In] rain trousers you always look like a complete muppet. And my philosophy is, doesn't matter if you are wearing lycra or normal clothes, always cycle in style. And … I find it really off putting cycling in winter having this cumbersome, plonky rain gear it is terrible.

In response to a follow-up question about whether she had managed to find something more suitable and fashionable she suggested it was something you 'work on'. Other cultural conventions and the challenges of designing practical clothing that keeps out water also limit her options:

> If [I am] cycling [to] work I can go to the ladies [when I arrive] and take [my] trousers off there. But … cycling somewhere else or [if] you want to go into a shop as a woman you cannot take trousers off in public even if you are wearing normal jeans underneath, it is just not on. But the resolution would be to have a zip at the side but that makes a weak spot in the water protection so that's why you don't have it.

Britta's account is illustrative of how the weather instead of presenting itself as a 'barrier' is always part of a qualitative whole, a given 'situation' (Dewey, 1929a). Her description of getting dressed helpfully demonstrates how while a situation is always a one off, 'never to be repeated', it still retains 'relations' with past and future situations as 'traits' such as a 'little drizzle' or needing to be 'pretty' for work reappear albeit in an otherwise 'qualified way' (Alexander, 1987, p. 113). Within a situation, objects or events including the weather and dress conventions only stand out when they are crucial or pivotal at a specific moment in time (Dewey, 1929a). To deliberately highlight this and how an individual's experience and habits are shaped or mediated by their social and cultural environments, the gendered and embodied nature of appearance in the workplace and other everyday spaces has so far been emphasised. The next section examines Nick's morning routine and highlights how the weather and seasons in a similar but different way remains part of his '*active*, co-constitutive relationship' with his social and physical surroundings (Sullivan, 2001, p. 17, original emphasis) or his cycle habit. Focusing on rain, Section 5.4.3 further elaborates on these similarities and differences.

5.4.2 'Fathering' and seasonal adjustments

Born in Auckland, Nick has lived in the city almost all his life. He currently resides in the house they own with his wife and son in Auckland's western suburb of Mount Albert. With rare exceptions he commutes every day into the central city where he works as a consultant. Excluding their obvious cultural and gender differences, he is

similar to yet very different from Britta. Pretty ‘confident on a bike’ having grown up doing a ‘fair bit of riding as a sport’ and he also owns more than one bicycle (a fixed gear road bike for commuting and a mountain bike for recreational purposes). Nick’s working hours are flexible and his morning routine is also characteristically fluid: ‘[I]t might be … anywhere between half an hour and an hour after I get up [that] I leave [for work]’. The variable nature of Nick’s morning reflects the challenge of getting ready for work and juggling the needs and demands of young children. Flexibility, in contrast to Britta, is worked into Nick’s routine more out of necessity than personal preference. Thus from the time he gets up at ‘six-thirtyish’ [0630]:

> There are two scenarios. One if [my son] is awake and one if he is not. So I guess it is probably 50-50 whether he is awake or not. If he is awake obviously I get up to him during the week. Change his nappy, get him out of bed. Cook his breakfast in a hurry because he loves to eat, which is porridge and then we'll eat that together. And then he'll sort of hang out and play while I make a lunch. Typically I would most mornings iron a shirt and pack a bag. If [my son] is not awake [it is the] same thing but minus getting him up and managing him for the morning. And when I am ready to go I will go and wake my wife up, if she is not awake, and hand [him] over and then I ride to work.

For Nick, and other fathers, and reflecting the gendered nature of child care (Schwanen, 2007) but equally the changing ‘emotional work’ and practices of ‘fathering’ (Aitken, 2005; 2009, p. 3), the period between waking up and leaving the house was often a time in which they would help their partner or wife (who were sometimes also working either part time or full-time) with looking after the children. This was the only time that some participants, usually males, were able to spend with their young children during the working week because their hours of employment and/or the timing of their return commute did not coincide with their child’s sleeping patterns. Other participants structured their day so they could spend afternoons and/or early evening with their child or children. Peter who travelled 43 miles each way from Essex to London, for example, left his house at ‘at ten past five [0510]’ every day so that he could ‘get back just in time’ for his daughter’s bath and a few days a week pick her up from childcare allowing his wife to work longer. Beth a mother or three lamented the fact she could not do ‘mum things’ like doing her two

daughters hair in the morning because of when she has to leave for work. Initially she explained that she contemplated getting them up at six thirty [0630] with her before deciding it would not be fair on them. During the interview her husband Jack, who drops off and picks up the children from school, pointed out it was 'swings and roundabouts' as prior to taking the new job she spent time with the children in the morning and caught up on work at night whereas now this trend has reversed. Nick explained his job enabled him to not have to make such a trade-off. Since the arrival of his son he has been 'pretty keen to [leave work] as close to five [1700] as possible'.

Nick's variable departure times reflect his fathering duties and responsibilities which constrain his time in a different way to Britta who remains relatively independent and within reason leaves when she 'chooses'. Another a notable difference is that Nick wears non-work clothes to cycle in and showers at work. Thus looking out the window does not have the same significance that it does for Britta:

> I look out the window [*laughs*] [when deciding what to wear on my commute]. We've [...] got [a] ventilation system in the house which pulls air down from the roof and [...] it's got an inside temperature and a roof temperature on it. And it is outside [my son]'s bedroom so I see it when I go and see him in the morning. [S]o I'll typically go and have a quick look at that and the roof temperature is often a couple of degrees warmer than outside so. [...] [Y]ou [also] sort of get into a routine. At this time of the year, [early autumn], it is t-shirt and shorts [and] maybe in the morning it is starting to get into the weather where you might need a light jacket or something so it is seasonal as well. [...] [F]or commuting [though] I'll just typically wear shorts, a t-shirt and a jacket if I need it.

Here, Nick illustrates how gradual adjustments are made throughout the year as the seasons change. Auckland's 'subtropical climate' with its warm and humid summers and mild winters mean he 'typically' just wears shorts, a t-shirt and a jacket. Rather than a 'barrier' then, the vagaries of the weather and seasons are something that cyclists such as Britta and Nick through the development of their specific habits have come to incorporate into their morning routines and the way they dress. In both cases looking out the window is important but as we shall now see for different reasons.

The observations Nick made during this morning ritual occasionally influenced the timing of his commute and in some instances whether or not he cycled. His and other

cyclists' reasons for not cycling are explored in more detail in Section 5.5.1. The remainder of this subsection drawing on field notes from his first go-along focuses on Nick's knowledge about the weather:

> I've just arrived at Nick's house … having driven around 10 minutes from my Uncle and Auntie's house in the nearby suburb of Point Chev. On top of the folded down seats in the back of my sister's car is the mountain bike I have borrowed [...]. I was originally toying with the idea of cycling to Nick's [but] the sound of heavy rain on the roof during the night … and the eventual sight of it tumbling down outside my bedroom window at 0630 were enough to make me think otherwise. As the clock in the car ticks over to 0729 I gather my things and head up the driveway dressed and ready to go in my cycling gear. I quietly knock on the glass sliding door and as Nick approaches I notice that he is wearing a black pull over, jeans and his glasses. Initially I'm surprised as he doesn't appear to be dressed for cycling. Pulling the door open and inviting me in, he informs me there has been a change of plans and we will no longer be cycling.
>
> Fifteen minutes later, sitting in his open plan kitchen helping his son eat his porridge, Nick breaks the silence: 'I did see you coming up all changed and ready to go and I was like ah yeah this is his thing [PhD]'. Apologising he says he probably should have texted me and offers to repeat the commute again by bicycle. I tell him driving over I thought 'he is pretty keen to be going out in this'. He laughs and suggests that it can be hard to read weather like we have today:
>
> 'Yeah [this is the] thing about this sort of showery sort of stuff. Like now it hasn't been raining for half an hour [so you] could have been at work in that gap in between. But it is just a bit cold and nasty. [...] I think everyone has their own point where they are just nup I'm not going today, it's too shitty. But even [though] it has [been] raining it is probably going to be an alright afternoon'.
>
> When I query him on this observation he observes: 'looking at the weather last night it looks like it is supposed to get a bit better during the day'. Interested in his general knowledge about the weather he responds to an additional enquiry about his ability to read the weather by looking out the window:
>
> 'You can look that way and see what showers are coming over. [...] [G]enerally it comes from the West. So on days like today I'd have a peak out there and if it is like it is now I'd take off [Figure 5.4]. […] Most of the time I just decide to go [and] ride. If it is like this then I will wait for a few minutes until it stops raining here because I find it easier to go out when it is dry or to get wet once I've started rather

than going out when it is already raining. It is Auckland so you can't really pick the weather that well really' [Auckland Field Notes, Friday 21 June 2013].

Figure 5.4. The view to the west from Nick's front window in Mt Albert, Auckland, New Zealand. On showery days such as the day of our first commute he would usually look out this window in this direction when deciding whether to depart on his commute.

Once again Nick's account demonstrates how daily and seasonal variations in the weather are always a feature of any given situation, a part of the world we experience. The ways in which we experience these conditions, as Section 5.5 further elaborates, in turn are mediated by our habits, meanings and other environing conditions. The weather only 'stands out conspicuously' as an 'object or event' when 'because of its especially focal and crucial position at a given time' it presents itself as a problem of use or enjoyment (Dewey, 1929a, p. 72). Dewey (1929a) defines such instances as 'problematic situations'. Subsection 5.4.3 concludes this section by considering the significance of the weather.

5.4.3 The *significance* of rain: Weather as a problematic situation

Dewey asserts 'we do not stop unless there is interference' as 'without inhibition there are no hesitations, crises, alternatives, need of re-direction' (Dewey, 1929a, p. 314). As long as, what he refers to as 'established organic-environmental integrations', can 'maintain themselves, they do so' (p. 314). Consequently there 'is then no opportunity for transforming meaning into idea' as in 'completely integrated function there is no room for distinction between things signifying and things signified' (p. 314). It is only in instances where 'behavio[u]r is divided within itself' that 'some of its factors have a subject-matter which stands for present tendencies and for their requirements or indications and implications, while others factors stand for absent and remote objects which, in unifying and organizing activity, complete the meaning of what is given at hand' (Dewey, 1929a, p. 314). The degree to which such division necessitates conscious thought is determined by whether or not an alternative response already exists.

This is apparent in both accounts whereby the weather redirects and changes their morning routines. In Britta's case it influences the way that she dresses and, in some instances the bike she chooses to ride, when it is raining. Anticipating the weather for the commute and the day ahead involves a deliberate routine of looking out the window and studying an online weather forecast. Alongside this we also saw how over time she has come to identify a range of 'slightly weird' combinations of clothing and associated responses such as wearing a dress under her waterproof trousers so that she is able to avoid having to get completely changed when she arrives at work. The fact she has identified particular combinations of clothing and developed set responses highlights how she also is able to recognise similar traits in particular situations. Although these responses involve thought it is likely it only minimal as the 'readier a response, the less consciousness, meaning, thinking it permits' (Dewey, 1929a, p. 314).

Cycling, unlike the car (Sections 4.5.1and 5.3.2), entails a different, more direct and immediate experience of daily and seasonal fluctuations in the weather. A cyclist is 'exposed' to, rather than 'enclosed' from, changing elements of sun, wind and precipitation. For Dewey it is because of the immediacy of our relationship with nature such as weather that our knowledge 'stretches' and grows 'in increasing

sophistication and complexity' (Ryan, 1997, p. 1010). In both cities it became apparent that many cyclists such as Britta and Nick, as well as some walkers, had developed in some cases rather intricate understandings of certain features of everyday weather, especially associated with rain. Such understandings allowed cyclists and walkers to prepare and dress appropriately for and/or delay or change their commute. As the two accounts above show the level of knowledge acquired, the means of acquiring this information, and, perhaps more importantly required, varied between participants.

Of all the participants involved, Britta seemed to possess a particularly sophisticated and extensive knowledge of meteorological features such as cloud formations and the type and likelihood of rain. This appears to have evolved, at least in part, alongside her preference to not get changed after cycling to work (Section 5.4.1). For Nick, on the other hand, who always gets changed at work adapting his clothing to the conditions is a less important consideration. Instead, his main concern looking out the window is determining whether he will delay his departure or in some instances catch the bus instead. There did appear to be place-specific differences in that the way people talked about Auckland's climate there seemed to contain some aspects which were more 'predictable' than London's. In particular, Nick and other cyclists often commented how rain came from 'the west' and tended to pour down for short periods of time, hence it was possible to make it to work during a break in the rain:

Josh: I look out the window […] to the west generally and [if] I think I've got 10 minutes of non-downpour to get to work … I'm going to go for it [Jen: Yeah totally]. That's essentially [it]. And if it is down pouring I might wait a few more minutes you know [*laughs*].

Holly: It is true because in Auckland it does [just] stop [*laughs while saying*] *it is amazing.*

Overall, Britta and Nick's accounts also help to reveal at least two other important aspects of Dewey's pragmatism. First, habits are not only automatic, mechanistic or unreflexive responses to environmental stimuli or 'barriers'. Instead as Britta and Nick's accounts illustrate they are characterized by a special sensitivity to particular classes of stimuli. The weather and seasons thus are by no means a generic or universal stimulus. Rain, for instance, only stands out as an event or object, as a

functional part of situation, when it has consequences for action such as wanting to stay dry to avoid completely changing at work or when it becomes 'too shitty' to cycle. Second, while it is possible to separate action, in this instance getting ready for and cycling to work, into discrete acts or stimulus (i.e., it is raining, rain is forecast) and response (i.e., wear particular clothes, delay departure), it should never be interpreted independently from the series it belongs. This is because the 'end' (i.e., response) is not 'an end or finality in the literal sense, but is in turn the starring point of new desires, aims and plans' (i.e., means) (Dewey, 1984, p. 60):

> Each step forward, each 'means' used, is a partial attainment of an 'end'. It makes clearer the character of that end, and hence suggests to an observing mind the next step to be taken, or the means and methods to be next employed (1984, p. 60).

Importantly, habits and meanings provide the means and mediate these ends. Both emerge in our continual experience of acting upon and being acted upon by the environment. Attempting to understand how cyclists anticipate, prepare and dress for their commute thus necessitates an appreciation of how individuals experience their commute and how this in turn shapes their subjectivity.

5.5 Cycling seasons: Experiencing weather and seasons

Daily and seasonal variations in weather it has been argued are not barriers but rather *always* a feature of an 'actual and specifiable situation', and only taking on *significance* when conditions became 'problematic' (Dewey, 1929a, p. 67). Section 5.4 reported how anticipating and responding to such conditions cyclists develop a range of, sometimes unique, habitual actions and patterns of thought. This section reflects on how cyclists experience weather and seasons in the course of the commute. It starts by exploring some of the reasons provided by some cyclists why they choose not to cycle in particular conditions. For some cyclists these occasions provide a timely reminder of why they cycle. Building on this it finishes with a short discussion of how year round cyclists develop a gradual indifference to certain types of weather such as rain, and, in some instances, even learn to cherish particularly challenging conditions.

5.5.1 Cycling in a weathered city

Nick on some occasions decides not to cycle to work (Section 5.4.2). On the day of the winter go-along he explained that his recent cold was a contributing factor. He hinted at this during the initial interview when observing that the decision to ride on wet days is partly dependent on how he 'feels':

> It depends what I feel like if I'm honest. If it is showery which it is often here [in Auckland] I don't care I'll ride. If it is [...] I've got wet weather gear, I'll get wet anyway, but I've got a jacket and enough stuff to stay warm so that doesn't really bother me. Typically if it is really raining hard and is windy it is probably half the fact a) I don't want to ride it but half is a safety concern as well. Yep. I don't mind getting wet when I'm riding but going out in the rain is always a little bit more difficult. Especially when you are warm and cosy from bed you don't want to charge out into mid-winter rain [*laughs*].

Nick is prepared to cycle in the rain and does not 'mind getting wet' but on some days finds it challenging in leaving the comforts of home and concerned about his safety in certain conditions. When pressed further he suggested safety was not specifically an issue he associated with the wet as he 'regularly [has] close calls' with 'vehicle[s] passing closely or someone pulling out in front of [him]'. Consequently, he explained that '[for] the majority of the time [you can] avoid those sorts of issues' by 'rid[ing] conservatively and defensively'. The adoption of such strategies was common amongst cyclists in both cities (see also Fincham, 2006; Jungnickel & Aldred, 2013; Spinney, 2010). These strategies are further considered in Chapter 6. For the time being these observations reinforce the argument made in Chapter 4, car-centric urban forms and transport infrastructures shape the experiences and associated habits and meanings of other road users.

For regular cyclists close calls or near misses are always part of the qualitative whole or situation associated with cycling. Phil discussed how the materialities of the road can further increase your sense of vulnerability. Originally from the UK, he recalled how he used to regularly cycle a 32 mile round trip from 'New Meals into Manchester pretty much four times a week'. 'Every week' he 'would have a near miss or a bit of a confrontation [with] somebody'. Despite this in his view Auckland was even more 'frightening' as people 'don't see anything outside of their car'. The city in his view could be a joy to 'ride around' as there are 'nice hills to ride up',

‘nice flat bits’ and ‘fantastic views’ except that the ‘lay out of the roads and the drivers take away the fun’. He suggested that the road surfaces were ‘really good’ except on especially rainy days as the wet conditions altered the grip of his tyres on the road surface:

> [T]he surfacing … is really smooth and it is great in the dry but it [could be] lethal [in the wet]. It gets really greasy and … doesn't drain particularly well and the actual material they use for the white lining is really slippery, so it is even worse than the UK. So it is kind of quite hairy when it is wet which is another reason why I don't cycle when it is really chucking it down.

Correspondingly, he talked about how his approach to both cycling and such weather events has changed with his age. Unlike when he was living in the UK and first arrived in Auckland he no longer cycles all the way to work in the morning instead opting to catch the ferry part of the way. When he does ride the full trip it is typically on the way ‘back’. Now in his early forties, he explained the reasons for these changes were he was ‘getting too old’, and if ‘honest’, he ‘just [couldn’t] be bothered anymore’. In making these observations he indirectly reminds us of the ‘human energy expenditure’ required by cyclists, and pedestrians for that matter, as they move between different spaces (Spinney, 2010, p. 123). Phil illustrates how bodily transformations, such as those associated with ageing, can change a cyclist’s capacities, meanings and by implication, the subjectivity they associate with cycling. In particular, the meaning and the subjectivity he associated with being a ‘proper cyclist’ became apparent when he talked about his changing approach to challenging weather conditions:

> I tend not to ride in the rain as I use to. I use to make a point of riding through snow [when] it was [like] minus ten (-10) [degrees] and rain just to prove I was a *proper cyclist* sort of thing. These days I don't really care about that anymore. [I]f it is raining, if it is chucking down, [and] I'm thinking I'm not going to ride all the way back in that, I'll get on the ferry [*Emphasis added*].

For Phil then greasy road surfaces coupled with his ageing body, changing meanings and sense of self he identifies with his cycle commute, all contribute to him catching the ferry back on wet days. Other cyclists also discussed how regular cycling had changed who they were.

5.5.2 Longing to cycle: Changing subjectivities

Ellie when first starting out in London around seven years ago was a bit ‘chicken’ and only rode her first bicycle in parks before it was eventually stolen. It was only after purchasing a Brompton through a cycle to work scheme, which she had intended to use to ride just to and from the nearest train stations to home and work, that this all changed. Arriving at her nearest station for the first time she decided to cycle a bit further and before long she had ‘accidentally [ridden] the whole way to work’. From this point on she was ‘hooked’ and now ‘cycle[s] everywhere’. Ellie’s morning weather routine, like Britta, involved looking out the window and checking the weather on her phone. The MetOffice app, in particular, plays an important part in determining whether or not she cycles:

> If [the app] says … it is not going to rain between six and nine (0600-0900) [I] think cool I can ride. [I]f it is going to rain for like the period … I'm biking home from six (1800) or something and … I'm going home and not … out [after work] I don't really care if I get wet [and] I just bike. But if it is going to rain during the way to work then I really can't bike because my wheels are small and the road is slippery and if I get to work covered in rain it is just going to be a bad day.

There is a lot 'riding' on getting this decision right Ellie explained as ‘sometimes you get it wrong and [...] don't bike when you could have and that is as annoying as hell’ because ‘biking is like a million times better than any other way of getting around’. At the same time she is very aware of the dangers associated with cycling on wet and icy roads (see Figure 5.5). An awareness which in part can be attributed to the fact that she has previously broken her ‘leg in four places’ after coming off her Brompton going around an icy corner on the way home from work.

A number of cyclists including Ellie explained how cycling not only had changed their impression of other modes of transport, but had in subtle and sometimes significant ways and on different time-scales (i.e., days; weeks; years), transformed their bodily responses, and in some cases who they were as an individual. For example, Nicola suggested it was ‘easier’ and ‘quicker’ catching the train as arriving at work ‘you don’t have to do any of that faffing about’ such as ‘gett[ing] dressed’ and ‘doing [your] make-up’. Despite this she explained how ‘you don’t feel as good’ as after cycling ‘you just feel you’ve had some exercise and a bit more energized’.

She went on to suggest how ‘sometimes’ on days when she did ‘pack’ onto the train due to bad weather she found it altered her mood:

> I suppose going on a train and getting all, just staying warm or whatever, and being stuffed up against someone … I sometimes find my mood is not [as good]. Well it is not always great anyway but … sometimes when you've had to get on the train with people shoving into you and stuff and being all packed [in] you’re not in as good a frame of mind to start the day.

Figure 5.5. A picture taken a few minutes before my morning cycle commute with Ellie on Thursday 23 January, in the London suburb of Hackney. The image captures some of the remnants of the snow that had fallen the previous week and over the weekend. Reflecting Ellie’s reservations about cycling on wet and icy roads it was not clear in the days leading up to the commute whether or not we would cycle. In an email on the Sunday 20 January she observed: ‘Oh and by the way, if it's still icy from the snow by Thursday, I won't necessarily be cycling. We'll have to play that bit by ear’. The night before the commute she was still cautious but optimistic about our chances: ‘I am still planning to bike tomorrow […] but I am quite worried about the ice, which makes cycling treacherous. I'll make a call in the morning as to whether it's safe or not. It was fine tonight, so it should be OK. If in the morning you don't feel it's safe to cycle from where you're coming from, that's fine and I can take public transport instead’. In the end the commute went ahead as planned.

Similarly, Ellie observed how she ‘use to like [the tube]’ before she started cycling but now ‘can’t stand it as a commuting tool’. It ‘is just miserable because everyone is squashed up’ and ‘the pole that you hold onto is always really greasy and slippery

like it is covered in … disease or dirt or something gross'. More importantly, she now feels her body does not function properly if she has not cycled for a few days:

> I do notice if I don't ride my bike for a few days that my brain isn't as good and … I feel more stressed. […] I've missed that opportunity to just let things go that you have when you are biking. The thing with biking is it is pretty much the only time in my life that I can think of when I am only doing one thing at a time. Because I have to only do [that] and that's why I don't listen to podcasts or anything I'm just biking. And I'm not checking email or talking to people. I'm just with my thoughts, pedalling and it's really, really important for me that I have that mediation time I suppose.

Rob discussed how over time his body had grown accustomed to his 15 kilometre 'door to door' commute from Auckland's western suburb of Te Atatu West into the central city. When he first began cycling this journey he used to 'feel really good' when arriving at work. Over time as he has continued to repeat this journey the enjoyable sensations or 'goodness' which he use to register have slowly transformed as these bodily impressions have become normalised:

> When I first started cycling into work this longer ride, because before when I lived out east it was quite a short commute so it probably wasn't long enough to get the endorphins going or anything. But riding in here … you arrive and feel really good and definitely I would notice that I would have a much better [and] more productive day as a result of riding in than if I didn't. But now unfortunately because I ride in all the time what seems to have happened is that is normal and so what you notice now is if you don't ride in you just feel like shit. So that kind of [*laughs*] … goodness has become normal [*laughs*]. And that's definitely a consideration that I have when I think about [whether] to ride in or not. There is [a] conscious of awareness of how I'm going to feel as a result of not riding in.

In a somewhat similar manner other cyclists observed how they gradually became indifferent to fluctuating weather conditions and, as we will see in Rob's case again, even learned to cherish them.

5.5.3 'No-one ever died from getting wet'

A number of cyclists described how their modes of response became so 'normalise[d]' or habitual that they only encountered difficulties in relation to the

demands and challenges of particular seasons when attempting to recommence cycling after having stopped for a short period of time, as Mike notes:

> [Cycling during different seasons] is something that I normalise and then every now and then I might recalibrate [it]. … [F]or a … couple of months … I was catching the … car in [to work] with my wife … because I'd had some quite long and stressful days at work and found commuting either side … wasn't fitting in. And it was during winter that I got back into cycling again. I was right I've got to start this. And the first couple of times were really hard. You've got to get your stuff organised because you don't quite remember what you need for the temperature. Is one jacket enough? Is one jacket too much? I [would] get five minutes down the road and [was] stinking hot. But it doesn't take long … a week or two riding, and you are used to it and it is normal. And you recalibrate your brain into knowing what you need, when you need it. You know if it rains I'm going to need a bit more time to clean myself off at the other end. And you think through that whole process.

Seasonal variations in temperature and rain have in this way just become something that Mike and other year round cyclist adjust to and learn to accommodate (Sections 5.4.1 and 5.4.2). These conditions are incorporated into an individual's cycling habit in different ways but especially in the way they dress. For Veronica, who changed upon arriving at work, there was also a sense in which 'you dress accordingly'. Staying warm was important but often as you are 'moving anyway … your body generates enough heat'. Meanwhile, she explained remaining dry was commonly less of a concern:

> My cycling gear … is pretty much standard. I have my underwear for cycling [*laughs*] and I … bring different clothes for [work]. I wear a t-shirt, cycle pants, [in] this kind of [wintery] weather leggings, socks, shoes, a high vis vest, [and again as] it is winter a fleecy top. […] [After] you cycle for a little while anyway you … get hot. If it is wet I don't have full on rain gear, I just have a plastic poncho thing because I find you get more wet from the water on the ground than you do from it coming down really.

The intention behind the poncho was not to keep the rain off but instead to 'protect her bag' and to keep her spare clothes dry. She went on to explain like many other regular cyclists how you learn to accept and become relatively indifferent to the 'consequences' of being exposed to the fluctuations in the weather:

> Ultimately you are going to get wet. So that doesn't bother me. It is just one of the consequences and no-one ever died really from getting wet. And so as long as you've got dry clothes to change into I don't see that it is really a major [*laughs*]. I learnt that a long time ago when I was quite active in athletics and I can remember asking … a coach about what happens if we are training when it is raining? And the short answer was you get wet. So since [then] I've kind of … gotten over that hurdle [*laughs*] [and] it doesn't bother me.

Figure 5.6. This picture taken in central London during winter captures the variety of different ways in which cyclists dress to accommodate the changing demands of the seasons.

This is not to say that regular cycle commuters did not find it difficult cycling in, as Mike described them, 'challenging' conditions. Winter, in particular, is an especially difficult time of the year. This is certainly reflected in research on daily and seasonal variations in cycling patterns (Section 5.2). Over time year-round cyclists develop a range of modes of responding to these conditions from altering the way they dress to learning to accept them as part of their journey (Figure 5.6). Alongside this many cyclists also came to appreciate or value the different aesthetic or material qualities associated with different seasons, despite their associated demands on the body.

Rachel captures this sentiment in describing how after witnessing the rich tapestries of colour in the winter sky she struggles to get her helmet off:

> Well it is never as bad as you expect [when you first leave the house even though] it always looks cold and dark outside [during winter] […]. And actually cycling at this time of this year is lovely because the light is just changing and it is getting lighter and the colours are just stunning. I get a real kick out of my morning cycle. Just coming across the river and getting that lovely sort of colour you get with [a] dawn sunrise. Um so no by the time I get to work I'm frozen. I couldn't get my helmet off this morning because my hands were so cold even with gloves on. So I just had to look like a dork for a bit until [they warmed up].

Similarly, Rob in discussing the role comfort plays in his life, discussed how variable conditions from storms to sunshine in different ways help to remind him he is 'alive' and add variety to his everyday life:

> I guess for me [one aspect of] comfort is … being in your house where it is dry and warm and then the opposite … is going out the door jumping on your bike into a storm. But it is not that I feel uncomfortable, I really like that environment I'm comfortable in that environment, but … I wouldn't describe it as comfortable. It is kind of like an adrenaline rush and it gives you energy and shows that you are living life and makes you a part of the environment. [It] makes you kind of feel a bit small and vulnerable which also makes you feel alive. And then you … get to work have your … hot shower and you're … comfortable again. And then you leave [and] sometimes the ride home can be equally as comfortable on a sunny day when you're in no hurry, it is really nice. So comfort is a good thing [and] very important [but] I would get bored in [my] life if that's all [I] had. It is good to push yourself.

5.6 Conclusion: Weather and (re)turning to exposed modes of mobility

The Department of Transport's (2013, p. 15) strategy for improving the integration of sustainable transport in the UK observes that given 'the majority of short trips are made by car, we need to ask why people do not use public transport, cycle or walk for these short journeys'. In their view what is required is insight into 'people's current transport choices and the barriers to using greener modes of transport' (DfT, 2013, p. 15). This chapter has argued framing the 'weather' and other factors such as

‘traffic-related safety risks’ as barriers (DfT, 2013, p. 13) only serves to reinforce existing individualistic understandings of action including that barriers are real, behaviour is a linear process and habits are just automatic responses to environmental cues or stimuli (see Section 2.3.3). Focusing on cycling, the weather and seasons, this chapter has subsequently sought to demonstrate the limitations of the notion of barriers to action in three main ways.

First, drawing on existing and primarily quantitative research it was observed that far from being a universal barrier the impact that particular weather and seasonal conditions have on rates of cycling often vary in different local, regional and international contexts. These studies do illustrate that precipitation, temperature, wind and daylight can result in shifts from active to motorized modes of transport. Equally though they reveal that in many instances there are often higher average rates of cycling in cities that are windier, colder and wetter than those that are drier and hotter suggesting that weather may contribute to but does not determine underlying patterns. Meanwhile, automated cycle count data from Auckland and London illustrates similar trends but also suggests corresponding with annual increases in the number of people cycling there has been an increase in the number of ‘year round’ cyclists. Although count data and other typically quantitative studies are capable of revealing such trends they provide no explanation for why these trends exist, how or why they have or might change, or how people anticipate, experience or negotiate such variations. Consequently, it was argued that there is a need to move beyond quantifying the extent to which weather and seasons act as barriers as such attempts produce rather static and fixed accounts which fail to sufficiently capture the complexities of action.

Second, three different conceptual approaches which move beyond the limitations of individualistic understandings which distinguish between ‘internal’ and ‘external’ barriers were introduced. Theories of practice, social-technical systems and situations were used to consider Brian’s explanation for why he continues to commute by car. Socio-cultural-inspired approaches it was observed provide insights into how people’s everyday practices are shaped by their discursive and practical consciousness, especially the ways in which individuals mobilise particular arguments to avoid social controversies and justify their actions. Other practice-

based and socio-technical accounts stress the need to understand how Brian's actions are embedded in a socio-technical context, the system of automobility, which continues to condition, enable and often make necessary the need to drive and alter the ways in which we understand, encounter and experience the weather. Driving is thus no longer understood as an outcome of '(ir)rational choice' but as a conditioned demand and meanwhile 'barriers' are reframed as 'conventions of normal practice' (Guy & Shove, 2000, p. 70). Corresponding with such interpretations it was observed Dewey's theory of situations provides a way of understanding the context of events and meanings. In recognising how situations are mediated by meanings it was suggested like socio-technical and practice theorists that he also stresses the importance of understanding how collective meanings or 'minds' emerge in particular social and physical environments. More importantly, though in acknowledging the immediacy or the felt aspects of these situations he does not underplay the dynamic way in which individuals make sense of and negotiate these meanings in everyday life. Additionally, in emphasising that habits are not simply the outward performance of acts Dewey accounts for the role that these dispositions or capacities play in forming the basis of the self or subjectivity.

Third, interviews and go-alongs with commuter cyclists were drawn upon to provide some insight into daily and seasonal cycling trends and the limitations of attempts to interpret the weather and seasons as external barriers. Here, it was argued that Dewey's theory of situations helps to illuminate how experiences unfold and associated habits and meanings emerge in the continuous and contingent social and physical environments of action. To demonstrate this contention the ways in which cyclists anticipate, experience and negotiate daily and seasonal variations in the weather, both at home and on their commutes, were explored. In doing so it was illustrated how cyclists 'inhabit the road' in ways that are distinctive from car-drivers and what implications this has for their habits, meanings and subjectivities. The accounts of two cyclist's morning routines were used to draw attention to how the weather is rendered important or unimportant during the course of getting ready for and cycling to work alongside a range of other concerns including feeding cats, dressing for meetings and looking after children. Correspondingly, it was asserted that the weather or seasons are always part of an organic whole and only distinguished as a functional part of a situation when they become 'problematic'.

Importantly, it was observed they act by no means as generic or universal stimuli or barriers which automatically trigger or block particular habits. Rather weather events as such were demonstrated to only be significant in a situation where they had specific implications for action such as heavy rain which results in a cyclist delaying their departure or catching the bus instead.

The consequences of such events for action are also by no means universal and accordingly habits were shown to entail a special sensitivity to particular classes of stimuli (e.g., type, duration and likelihood of rain) which reflected an individual's requirements or needs. Moreover, it was contended that while it is possible to separate action into discrete acts or stimulus such as looking out the window or checking the weather on a phone, these should never be interpreted independently from the series which they belong, namely getting ready and cycling to work. The ways in which cyclists experience and negotiate the weather over the course of their commutes were then explored to further contextualise these insights. These accounts revealed the ways in which over time cyclists come to incorporate these conditions into their cycle habit. Their modes of response varied from altering how they dressed, as well as, learning to accept or in some instances coming to value these daily and seasonal variations. Accordingly, it was observed how in various ways the weather helps to reveal how particular social and physical environments contribute to the emergence of cycling subjectivities.

Overall, the notion of 'barriers to action' reflecting the individualistic assumptions underpinning it assumes technologies, infrastructures and weather as separate from people produces rather static and linear accounts which fail to recognise the ways in which these environments might give rise to low carbon habits, meanings and subjectivities. In contrast, Dewey's theory of situations provides a way of accounting for the immediate and mediated, actual and potential, and radically distinct and more general character of experience. These experiences, which emerge out of an individual's interactions with their social and physical environments, are fundamental to the development of such habits, meanings and subjectivities. Chapter 6 now explores in further detail the potential implication of Dewey's theory of situations for understanding the relationship between habit and thought.

Chapter 6.
Re-valuing habit and thought: The role of habit, reflection and experimentation in commuting

6.1 Introduction: The trials and tribulations of being a working mother

Emma's mobile phone rings as she gathers together various work-related items to take home. Checking the number she takes the call. Hanging up three or four minutes later she elaborates: 'This is how the day goes and I could just spend, well technically I'm supposed to be at work until five thirty-ish [1730]'. She 'has a deadline' for her two year-old son, however, who has to be 'picked up by five thirty' [1730] from day care. Additionally, her five-year-old daughter needs to be collected from after school care by six [1800]. Fortunately most of her clients 'are pretty flexible [and] family orientated or aware' and she is 'often' on her 'emails at night time anyway'. Collecting the rest of her things, Emma suggests that she typically aims to 'to do a lot of work at home each night [but] by the time [the] children go to bed [she is] usually absolutely knackered' and does not get anything done.

Loading everything she has brought from the office into the car, Emma provides a glimpse into the challenges of juggling work and family life: 'I'm really disorganised [today] because I haven't got any dinner organised for the kids. So now in my mind I'm going crap what's on the way home that I can pick up? And this is kind of how it is'. Having brought in the work rubbish and recycling bins from the street we get into the car. Rather than starting the engine, however, Emma takes out her iPhone: 'There is a girl on Facebook who does food. … Jess's Underground Kitchen and she cooks meals and you have to order by twelve [1200] and you pick them up after five [1700]. … And she always has extras. … So I will just quickly … see if she has got anything. … [*reading out someone else's Facebook post and Jess's response*] 'Can I get fish pie? All sold out sorry'. … So that's not going to work for me. Ok we'll [have to] think of another alternative'. She starts the car and we leave.

Five minutes or so later Emma turns off the main road onto a back street: 'I forgot this road is quite nightmarish too. So what I've decided to do now, and this can

often happen on my commute home, there is a butcher at the top of this road and all going well I can get a car park and watching my time I will run in and grab some meat for us to have for our dinner, because I'm disorganised (see Figure 6.1). Normally I'd try to have a crockpot on or something'. As a result 'we've come up one [road] earlier' than the one she normally takes directly to the day care, observing that these back roads are 'quite a popular' as 'Auckland's traffic is always just so busy' [Auckland Field Notes, Wednesday 19 June 2013].

Figure 6.1. A quick detour later, and the crisis of 'what to cook the kids for dinner' is averted. Having realised upon leaving work she did not have anything at home, Emma ran through a series of contingency plans before finally settling on picking up some meat from the butcher. Conveniently located on the corner of a back street in Ponsonby [to the left of the picture], which allows her to avoid Auckland traffic and the main road which her son's day care and daughter's school is located on she explained it allows her to not go out of her way. An additional advantage is that she can 'normally pull straight into' the bus stop directly out front, even though 'it's a bit naughty' and quickly run in to get something. Combined these factors make it a 'quick and easy solution'.

At first it may seem like Emma's evening commute shares very little in common with the commuter cyclists' accounts presented in Chapter 5. For a start, and of course reflecting the aim of the chapter, they all centred on the ways in which cyclists variously anticipate, negotiate and experience weather and the seasons at home, on their commute and at work. Meanwhile, Emma's account highlights how what could be a relatively simple and short commute[13] from her office in Grey Lynn, where she is a manager and owner of a corporate branding company, to the nearby

[13] Door to door the 1.6 mile (2.7 kilometre) journey according to Google Maps would take approximately 6 minutes to drive (without traffic), 8 minutes to cycle, and 28 minutes to walk.

central Auckland suburb of Ponsonby is complicated by various parental duties and responsibilities she needs to negotiate alongside her work day. These needs include among others: picking up her son from day care, daughter from school, making them dinner, getting them washed and ready, and putting them to bed. Upon closer inspection, and informed by Dewey's writings on situations, habit, and thought, however, we might start to draw out some similarities.

The 'flexibility' of the car aids Emma in maintaining the relatively complex spatial and temporal schedules that are crucial to ensuring she is able 'to manage family routines and to combine home and paid work' (Dowling, 2000, p. 349; Dyck, 1990; Rosenbloom, 1992). Such affordances, which Chapter 4 argued have largely been created by car-centric urban planning and design, have ensured the car has not only become a 'management tool' but also central to what Dowling (2000, p. 347; see also Dyck, 1990) terms 'cultures of mothering'. These individual and shared 'beliefs, attitudes, and symbols attached to mothering' are shaped by dominant media and popular culture representations which tend to 'valorize motherhood as constructed within the context of the traditional nuclear family' (Dowling, 2000, p. 347; Dyck, 1990). Equally important, as Emma's account reminds us, are the specific activities or 'practices of mothering' which become 'associated with these representations, for ideals of motherhood, regardless of their source, become part of daily life' (Dowling, 2000, p. 347). She talked at length in interview about the challenges and stress associated with providing the 'main [child-care] role' (see also Section 6.5.2). Work was particularly important as it was her 'time' in which she got a 'little break from home life' and to deal with 'adults rather than children'. In this way Emma illustrates how the institution of motherhood much like that of fatherhood (see Section 5.4.2) 'hinges on an 'idea' that does not embrace the 'fact' of [mothering and] fathering as a daily emotional practice that is negotiated, contested, reworked and resisted differently in different spaces' (Aitken, 2009, p. 230; Dowling, 2000). Thus these ideals or representations of motherhood, in the same way as social norms and conventions around clothing mediate a cyclist's weather and seasonal-related practices, are always part of the qualitatively unique, emergent and socially shared situations in which action unfolds.

There are two other similarities, as Section 6.2 elaborates on, which correspond with this chapter's focus on how habit limits and contextualises thought in ways that over time shape people's practices associated with, and experiences of, their commute. The rest of this chapter consists of five main sections. First, Section 6.2 briefly outlines the characteristics of dual-process or dual-system theories before elaborating on their limitations in relation to attempts to understand and change the actions of citizens. Such accounts are then contrasted with a Deweyan understanding of habit and thought which it is argued offers a way of moving beyond such dualistic thought. Second, focusing on catching the tube and cycling Section 6.3 explores how people gradually learn to adjust to transport systems, travelling and commuting in a new city. This initial phase is marked in part by excitement, uncertainty and experimentation. Over time as new adjustments are made and corresponding new habits form, what initially occupied the conscious 'foreground' of a situation increasingly becomes part of the 'background' which equate to the 'dimly apprehended field of non-cognitive experience' (Alexander, 1987, p. 111). Third, this transition from excitement and uncertainty to the familiar and certain is portrayed in Section 6.4 as the arrival of the mundane commute. Here we see a range of sometimes interrelated responses from trying to mix up the commute, grinning and bearing it and learning to value and actively use their travel time. Fourth, Section 6.5 then explores how even mundane commutes are still associated with problematic situations by examining the ongoing challenges faced by cyclists in car-dominated cities and the changing demands of family life. The chapter concludes in Section 6.6 by arguing Dewey's 'tenacious insistence' on the 'radical temporality' and 'situationality' of experience, habit and thought helps to reveal the limitations of existing dual process accounts which tend to demarcate habit and thought (Alexander, 1987, p. 61).

6.2 Moving beyond dual-process accounts of habit and thought

This section begins by outlining the characteristics of dual-process or dual-system theories noting that they are a class of theories rather than a unified account. It then explores how these ideas have been mobilised in libertarian paternalist and social psychological approaches and their associated limitations. The section concludes by

elaborating how a Deweyan account of habit and thought moves beyond such dualistic thought by revisiting the similarities between Emma's practices of mothering (Section 6.1) and how cyclists anticipate, negotiate and experience the weather and seasons (Sections 5.4 and 5.5).

6.2.1 Dual-process and dual-systems theories and their limitations

Many individualistic accounts of behaviour draw a 'distinction between two kinds of thinking, one fast and intuitive, the other slow and deliberative' (Evans & Stanovich, 2013, p. 223). Notably, these dual-process theories underpin many psychological and libertarian paternalist accounts which have or are becoming increasingly central to behaviour change initiatives aimed at encouraging shifts towards less carbon and resource intensive modes of everyday mobility (Section 2.3.1). Recently, Evans and Stanovich (2013, p. 224) have noted how as the popularity of dual-process and dual-system have increased 'so too have the voices of criticism'. Within psychology these criticisms include 'the multitude of dual-processing accounts, the vagueness of their definition, and the lack of coherence and consistency in the proposed cluster of attributes for two system accounts' and the 'evidence on which such claims are made' (Evans & Stanovich, 2013, p. 224; Gigerenzer, 2010; Keren & Schul, 2009; Kruglanski & Gigerenzer, 2011; Osman, 2004). For Evans and Stanovich (2013, p. 224) these critiques are 'problematic' because they do not attack 'any particular theory but rather a class of theories, effectively treating all dual-process and dual-system theories alike' despite the fact they 'are not, by any means, the same'. As they elaborate (see Table 6.1):

> There are many applications in which authors have proposed that two forms of processing are competing or combining in order to produce the behaviour observed. [T]hese Type 1 and Type 2 processes … [correspond] roughly to the familiar distinction between intuition and reflection. … Some authors have gone further, suggesting that there are two evolutionary distinct brain systems responsible for these two types of processing. … Such theories generally … add additional characteristics, such as the idea that there is an evolutionarily old and animal-like form of cognition and also a recently evolved and uniquely (or distinctively) human system for thinking. … [T]hese are often referred to as Systems 1 and 2 or sometimes as an old and new mind (Evans & Stanovich, 2013, p. 224).

Despite this diversity, as Table 6.1 demonstrates, these theories are still very much founded on a dualistic distinction between habitual or automatic and rational or reflective cognitive systems and/or modes of behaviour which inform both nudge and social psychological approaches.

Table 6.1. Clusters of attributes frequently associated with dual-process and dual-system theories of higher cognition. Source: Evans and Stanovich (2013, p. 225).

Type 1 process (intuitive)	**Type 2 process (reflective)**
Defining features	
• Does not require working memory • Autonomous	• Requires working memory • Cognitive decoupling; mental stimulation
Typical correlates	
• Fast • High capacity • Parallel • Nonconscious • Biased responses • Contextualised • Automatic • Associative • Experience-based decision making • Independent of cognitive ability	• Slow • Capacity limited • Serial • Conscious • Normative responses • Abstract • Controlled • Rule-based • Consequential decision making • Correlated with cognitive ability
System 1 (old mind)	**System 2 (new mind)**
• Evolved early • Similar to animal cognition • Implicit knowledge • Basic emotions	• Evolved late • Distinctively human • Explicit knowledge • Complex emotions

Thaler and Sunstein (2008) rely on a mixture of the different attributes reported in Table 6.1 in drawing a distinction between the automatic and reflective cognitive systems (see Section 2.3.1). They emphasise the importance reconfiguring choice architectures in ways that work with the automatic system and thus nudging people towards making better decisions or acting in more desirable ways (see Sections 2.3

and 4.2). As argued elsewhere such an understanding is severely limited because it fails to recognise the ways in which choices are *conditioned* by infrastructures, norms and subjectivities (Chapter 4). Equally though nudge overlooks the role habits, meanings and thought play in mediating our experiences of and encounters with our social and physical environments (cf. Jones et al., 2011; Pinch, 2010; Selinger & Whyte, 2010). As Selinger and Whyte (2010, p. 475) observe 'Thaler and Sunstein underestimate how difficult it can be to understand and predict how different communities of people will perceive the meanings that nudges present because *Nudge's* illustrative examples all focus on situations where technologies, interfaces, and built environments are used in delimited contexts'. In each of their examples 'users appear to have common perceptions of meaning' and their interaction with these choice architectures do not seem 'to engender new perceptions of meaning' (Selinger & Whyte, 2010, p. 475). Pinch (2010) illustrates this point while simultaneously drawing attention to the important role habits.

A common problem encountered by road architects Pinch (2010, p. 489) notes is attempting to 'design intersections between two roads where one road does not have priority over the other' while maintaining traffic flows and safety. Two common solutions are roundabouts (UK) and four-way stop signs (United States). For Pinch both can be understood as 'nudges' but in making this claim he emphasises the important role that driving habits play in ensuring they function successfully:

> If we think of these two traffic control devices as nudges to help drivers navigate an intersection it is immediately obvious any assessment of their effectiveness for the 'choice architect' depends crucially on skills we acquire in interacting with technology and the wider social cultural framework within which those skills are learnt. In the UK … drivers learn to slow down the correct amount as they approach a roundabout (they rarely need to come to a complete stop) and how to let traffic feed in from the correct direction …. As part of driving instruction in the UK, road users learn how to navigate this 'nudge', adjusting to the relevant traffic flows, including complicated … multi-lane roundabouts (2010, p. 489).

He suggests that in this way the roundabout 'fit[s] perfectly with Thaler and Sunstein's conception of a nudge' as if more were introduced into the United States they could 'save wasted gas as cars unnecessarily stop and then accelerate away and would permit far more quick and efficient journeys' (2010, p. 489). The problem is

that the 'skill to navigate a roundabout properly is something [that needs to be] mastered' (2010, p. 490). Pinch illustrates this point by observing his observations of how drivers in his hometown of Ithaca New York navigate the roundabout recently introduced by the municipal authorities:

> I often watch my fellow US drivers struggle with this nudge. … US drivers … repeatedly stop at the roundabout and anxiously wait for no traffic at all before proceeding. … Talk of [the] 'biases' [of the automatic system] unnecessarily confuses the issue. It is more a matter of skills learnt in navigating and interacting with the semiotic and material infrastructure of road technology, something that in this case is clearly culturally learnt (2010, p. 490).

Nudge accounts, Pinch (2010, p. 490) and Selinger and Whyte (2010) assert would have 'much more to offer' if they were to recognise the role the wider social and cultural contexts play in shaping an individual's habits and meanings which in turn mediate their interactions with technologies, interfaces, and built environments. Moreover, while libertarian paternalists recognise the possibility of reflective thought they rarely consider its role instead emphasising how behaviour is largely driven by impulse, arousal, '[i]nertia, procrastination and imitation' (see Jones et al., 2013; Leggett, 2014; Thaler & Sunstein, 2008, p. 238).

Social psychology theories which consider both habitual and reflective phases of action vary in their understanding of habit. In some instances habit is simply deemed to be equivalent to past behaviour (Conner & Armitage, 1998). Others define habits on the basis of how frequently the behaviour has been performed in the past, with regularly repeated behaviours being considered habitual (e.g., Neal et al., 2006; Triandis, 1977). Non-habitual or infrequently performed behaviours are said to be influenced by attitudes, intentions or perceived behaviour control (Aarts et al., 1998). These same 'factors' are believed to play only a limited role in habitual behaviours (Aarts et al., 1998). For example, in Triandis' (1977) Theory of Interpersonal Behaviour (TIB) as Figure 6.2 shows behaviour is understood to be determined by habitual or intentional paths. Operating in parallel, these paths offset each other such that if habit is strong then intention is weak and vice versa. Importantly, behaviour can become completely unintentional and unconscious if an individual 'frequently and consistently pursues the same goal in similar settings' (Aarts et al., 1998, p. 1369). For example, if 'travel mode choice' is 'performed many times in a stable

context' it can become 'automatically activated' by the 'situational context associated with that behaviour' (Aarts et al., 1998, p. 1369; Bargh, 1990; Bargh & Barndollar, 1996). An individual's 'intentional control' is 'effectively passed over to the environment in which the behaviour occurs' whereby habitual behaviours are triggered by certain contextual cues (i.e., places, times, people and other behaviours) (Darnton et al., 2011, p.3).

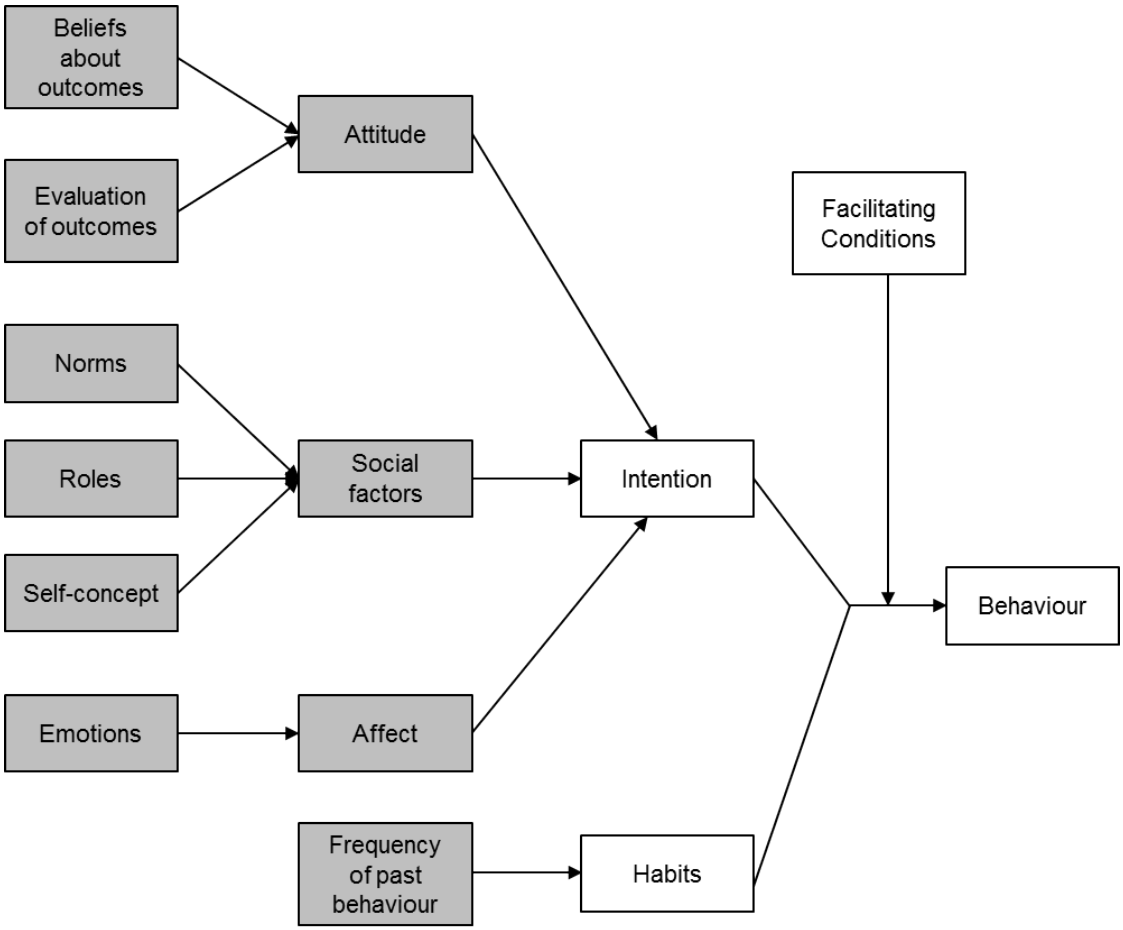

Figure 6.2. Triandis' (1977) Theory of Interpersonal Behaviour (TIB).

Reflecting these understandings interventions informed by social psychological theories focus on 'breaking' or 'defrosting' habits by disrupting the environment which cues an individual's automatic response. This typically involves 'modifying the costs and benefits associated with habitual and alternative behaviours' (Schwanen et al., 2012, p. 523). This might entail, for instance, the provision of free bus travel for a limited period of time (Fujii & Kitamura, 2003; Matthies et al., 2006; Thogersen, 2009) or making short-term alterations to infrastructural conditions such as by closing roads (Fujii et al., 2001). Alternatively, it can involve delivering habit-

breaking interventions during 'moments of change' when individuals are more open to or capable of changing their existing behaviour (Bamberg, 2006; Darnton et al., 2011). These 'windows of opportunity' include certain life events which disrupt people's routines (e.g., moving house, switching jobs, the birth of a child or retiring from work) (Bamberg, 2006; Darnton et al., 2011) and travel behaviour research suggests often people reflect on the way they travel and investigate new journeys at these junctures (Bamberg, 2006; Verplanken et al., 2008). This observation coincides with Dewey's (1929a, pp. 86-87) emphasis on how such 'problematic situations' result in reflective thought or active inquiry and experimentation (see Section 6.5). As Section 6.2.2 elaborates unlike these accounts he stresses the important role that habits, however, play in limiting and contextualising thought. Social psychological theories thus while at least giving due consideration to the role of reflection and deliberation like nudge theories typically conceptualise habit and thought as opposite ends of a continuum, with the former simply being understood as unreflexive and automatic responses to environmental cues.

6.2.2 Habit as the channel of thought and the fabric within which thinking operates

Dewey's interpretation of the relationship between habit and thought provides the foundation for the remainder of the chapter. This is elaborated on by exploring the two other similarities between Emma (Section 6.1) and the cyclist's accounts (Sections 5.4 and 5.5). The first relates to *when* thought takes place during action. Following Dewey it has been argued (Sections 2.5 and 5.4.3) that thought only occurs when we are confronted with a crisis or what he terms a 'problematic' or 'undetermined' situation. This takes place when an individual's 'confident, straightforward [and] organised' activity is arrested by some aspect of the environing conditions (Dewey, 1922a, p. 181). The operation of normally efficient and undisturbed habits is impeded or interrupted resulting in 'shock, confusion, perturbation, uncertainty' (Dewey, 1922a, p. 181). This frees impulse to energize deliberation, which is 'dramatic rehearsal (in imagination) of various competing lines of action' (Dewey, 1922a, p. 190). For some commuter cyclists the sight or prospect of rain in the course of their morning routine results in such moments of hesitation during which they recollect, observe and plan. Meanwhile, for Emma it is a matter of

figuring out ‘what's on the way home that [she] can pick up’ for dinner. In both cases the ‘objects experienced in following out a course of action [in their imagination] attract, repel, satisfy, annoy, promote and retard’ (i.e., what to wear; which bicycle to ride; whether to delay their departure; whether to catch the bus; what to eat; how long will it take to cook; where to buy it) until the ‘mind is made up, composed, unified’ (Dewey, 1922a, p. 192).

The second relates to the role that habits play in *qualifying* thought. As noted above nudge and social psychological accounts underpinned by dual process theories hold that although the automatic/habitual or rational/reflective ‘paths’ or ‘systems’ offset one or the other, the automatic/habitual usually tends to dominate action. For Dewey habit and thought, in contrast, are ‘not polar opposites, but phases within human experience’ (Hickman, 2001, p. 132). Habits, for Emma, the cyclists and all of us, are ‘blinder[s]’ that prevents their ‘thought[s] from straying away from its imminent occupation [with dinner or rain] to a landscape more varied … but irrelevant to practice’ (Dewey, 1922a, p. 172). They ‘restrict [the] reach’ of our intellect or ‘fix its boundaries’ (Dewey, 1922a, p. 172). Meanwhile, the ‘body of undisturbed habits’ which maintain ‘a steady background of objects and meanings that qualify the setting’ (Scheffler, 1974, p. 217). Embodied habits are ‘*what* we know [and] … present themselves with definiteness and assurance’ (Dewey, 1922a, pp. 183-184, original emphasis). They are ‘retrospective’ in that ‘they are conditions which have been mastered, incorporated in the past’ (Dewey, 1922a, p. 184). Impulse, on the other hand, has a ‘definite forward tendency it constitutes the forward, prospective character of knowledge’ which strives to ‘unify our responses, to achieve a consistent environment which will restore unity of conduct’ (Dewey, 1922a, p. 184). Upon her realising she has nothing for tea impulse ‘determines the direction of movement’ attempting to ‘bring to notice something which is imminent … yet escapes’ her (Dewey, 1922a, p. 180). Simultaneously impulse calls on Emma’s undisturbed habits which provide ‘definite objects and meanings as instruments of solution’ (Scheffler, 1974, p. 218) such as her ability to drive and knowledge of the network of main and back roads, associated local shops and their parking prospects and proximity to where she needs to pick up the children.

This chapter is concerned then with how habit 'determines the channels within which thought operates' and the ways in which 'thinking takes place within the fabric of habits' (Hickman, 2001, p. 132). More specifically, these two concerns provide a platform for exploring how habit, experimentation and reflection over time shape people's practices associated with, and experiences of, their commute. In providing context it is useful to re-emphasis that for Dewey (1922a, 1929a) habit and experience arise out of the interaction between an organism and its environment. This entails *undergoing*, 'the action of that environment upon the organism (and hence its capacity to be acted upon)' and *doing*, 'the action of the organism on the environment (its capacity to act upon the world and the capacity of the world to be acted upon)' (Alexander, 1987, p. 126). Both doing and undergoing are always 'related to each other or coordinated' (Alexander, 1987, p. 127) and a 'part, phase or aspect of an environing experienced world - a situation' (Dewey, 1938, p. 67). Thus situations are experienced as both immediate, in that existences are undergone, given or felt (i.e., primary experience), and mediated through habits, consciousness and meanings (i.e., secondary experience). 'Consciousness', for Dewey, 'is only a very small and shifting portion of experience' (1916, p. 6) and 'surrounding, bathing, saturating, the things of which we are explicitly aware is some inclusive situation which does not enter into the direct material of reflection' (1960, p. 99). Typically, it is the 'familiar [that] does not consciously appear' as our 'deep-seated habits are precisely those of which we have least awareness. When they operate in a situation to which they are not accustomed, in an unusual situation [such as traveling in a new city], a new adjustment is required' (Dewey, 1929a, p. 311).

6.3 Travelling and commuting in new city: Excitement, novelty and uncertainty

Drawing out the similarities between Emma and the cyclists accounts Section 6.2.2 explored both when thought occurs and the ways in which habits always direct and provide the context for thinking. In Emma's case it was observed how while she is preoccupied with what to get for dinner various features of the situation such as how to drive a car and which roads to turn down are for the most part 'taken for granted' and do not 'come into question' (Dewey, 1960, p. 99). This is because she '*know[s] how*' by 'means of her habits' which allow her and others to 'do [these and] a

thousand useful acts without thinking of them. We know something, namely, how to do them' (Dewey, 1922a, pp. 177-178). Habits do 'practical work', therefore, by providing a 'prompt and exact adjustment to the environment' (Dewey, 1922a, p. 178). Emerging out of repeated encounters with a particular social and physical environment, these habits provide people with an immediate familiarity, a *sense* of, or a feeling for, a situation as a qualitative whole (Dewey, 1929a). Before these habits emerge unusual situations such as those which we are unaccustomed to are experienced in various ways as novel, uncertain, exciting and risky. Focusing on catching the tube and cycling this section explores how people gradually learn to adjust to transport systems and infrastructure and travelling and commuting in a new city. Dewey's (1929a) uses the metaphor of a 'field' in his attempt to depict the relationship between habit, consciousness ('focal meaning') and the mind ('the context of meanings') (Hildebrand, 2008, p. 34):

> If we consider the entire field from bright focus through the fore-conscious, the 'fringe', to what is dim, sub-conscious 'feeling', the focus corresponds to the point of imminent need, of urgency; the 'fringe' corresponds to things that just have been reacted to or that will soon require to be looked after, while the remote outlying field corresponds to what does not have to be modified, and which may be dependably counted upon in dealing with imminent need (Dewey, 1929a, p. 311).

This section attempts to chart how through repetition what initially presents itself as an 'imminent need' (focus) gradually becomes either a 'sub-conscious 'feeling'' (fringe) or, in some instances, part of the 'remote outlying field' (horizon) for tube users and cyclists.

6.3.1 Minding the gap or the barrier gates?

Many participants who were not originally from London discussed the mixture of excitement and uncertainty they experienced when they first arrived and began using the tube. For example, Ryan who was originally from New Zealand but had been living in London for nine years at the time of his interview captured these sentiments. He described how travelling to unfamiliar parts of the city and problems with the tube which initially provided him with a sense of adventure and unease have subsequently become a source of annoyance or frustration:

> I guess when you first come over London is really big and it feels a bit weird. … [E]verything is new … so it's exciting. You are slightly uncomfortable going somewhere that you haven't been before or if a tube line is down you are like oh what happens now? But I remember at the time of that happening it was an adventure. Now it is just kind of annoying. And it's not uncomfortable except for the fact I might have to stand up when I'd rather not or I won't get home as quickly as I wanted to. Or I won't get where I wanted to go.

Ryan captures the way in which the unfamiliar city is experienced, or more specifically, undergone or *had* as 'really big', 'a bit weird', 'new', 'exciting' and 'uncomfortable'. These situations, or particular events within a situation, later come to have a different quality and significance. The tube line going down in both instances because it impedes and interrupts his journey becomes 'problematic' and the focus of his attention. It is marked out in the situation as an object or an event with meaning because it has '*significance* [in] respect to [its] consequences' (Dewey, 1929a, p. 271). When new to London, Ryan is uncertain as to 'what happens now', or how he should respond and what his alternatives are. The situation is defined and regulated by its uncertain (and 'adventure'-like) quality, this determines his 'immediate focus of intensive concern, [his] proximate sense of context, and [the] tacitly felt horizon' (Alexander, 1987, p. xix). 'Now', due to subsequently acquired habits and meanings which mediate the situation, he is not only aware of his various transport alternatives[14] but also their consequences (i.e., having to stand, not getting home as quickly or not getting to where he wanted to go). Typically annoyance as a result becomes the dominant quality of such situations.

Gareth, also from New Zealand, talked about how he had 'never really lived in a big city' and had always driven a car prior to shifting to London. Arriving eight months ago he was 'not used to' London's 'transport systems' and found it 'quite a daunting challenge': 'When you [initially] look at the tube map you are like what the?' He was fortunate though in that friends and family members 'explain[ed] how [the] systems work[ed] a little bit':

[14] This became apparent on morning go-alongs with Ryan in summer and winter as on both occasions services on his normal route were disrupted, once due to snow and on the other occasion because of a train breaking down.

> Basically [people said] just forget about all the names and things just focus on the colours and try and find the train which is going past where you want to go on … whatever line it is. Look for the names at the end of each … line and if you see a train which is heading that way you know your stop will be before then.

For him, in addition to heeding this advice, it was something 'you kind of do … a few times and get used to … pretty quickly. [After a short time] you can navigate your own way pretty quick but those first few times are a bit daunting'. A point he illustrated by recalling 'a really embarrassing story':

> I remember the first time I got my Oyster card. [I] went up to the kiosk and bought the Oyster card and put some money on it and all the rest of it. And then went to the gates and I don't actually know you had to put the thing on the yellow scanner. So I had to go back to the kiosk and so go 'what do you do now'? [*Laughs*]. And they are like 'see that yellow thing?' And I'm like 'Ok sweet you know got it' [*laughs*]. So from then on it was it was pretty sweet [*laughs*] but it was pretty [*laughs while saying*] *embarrassing the first time around*. […] [T]hen as soon as you have done it [a few times it] really [is] just second nature.

In this context Gareth uses the term 'second nature' to characterise how he 'pretty quickly' overcome his initial and rather 'embarrassing' difficulties thereby making the transition from a novice to a more accomplished and efficient user or 'navigator'. His turn of phrase is rather appropriate as Hegel used 'second nature' to evoke the 'naturalness of habit' (see also Bernstein, 2002; Carlisle, 2014, p. 16): 'From the lowest level of life, it seems the continuity or repetition of a change modifies, relative to this change itself, the disposition of a being, and in this way modifies nature' (Hegel, 2012 [1894], p. 208 (§ 401)). Dewey perhaps in part reflecting his earlier Hegelianism[15] characterises habits in a similar way observing they are 'secondary and acquired, not native and original' (Dewey, 1922a, p. 89). Inadvertently as we shall see Gareth also alerts us to the differences between an experience 'had' or undergone, a thing, object or event 'known', and habits as 'know how', by observing how you need to travel on the tube a 'few times' before it becomes second nature.

[15] See Good (2006) for a discussion of Dewey's 'permanent Hegelian deposit'.

'The self', Dewey (1911, p. 553) asserts, 'experiences what it *undergoes*, and … what we are aware of is determined by things that we are undergoing, but that we are not conscious of and that we *can not* be conscious of under the particular conditions'. In this way he contrasts the 'notion of 'undergoing' a thing with the experience of having an 'awareness' of a thing, a process that is genetically and temporally subsequent to undergoing yet still antecedent to knowing' (Hildebrand, 2003, p. 26). This implies that it is only after something is undergone and we become aware of it that 'knowing may take place' (Hildebrand, 2003, p. 26). This is because 'knowing is a relation to things which depends upon other and more primary connections between a self and things; a relation which grows out of these more fundamental connections and which operates in their interests at specifiable crises' (Dewey, 1911, p. 552). For example, having purchased and topped up his Oyster card Gareth attempts to go through the barrier gates but upon arrival is unsure of how to proceed. Returning embarrassed to the kiosk he is made aware of the yellow card reader and its connection to his Oyster card and the barriers. Over time he comes to 'apprehend' but not 'know' this yellow card reader as '[r]ecognition (the re-cognizing) succeeds by virtue, by and large, of factors that are not immediate' (Hildebrand, 2003, p. 44). His original uncertainty 'initiated an inquiry that was settled' and afterwards 'repeated encounters helped create a habit of interpreting such perceptual material' (Hildebrand, 2003, p. 44) as an Oyster card reader. Consequently, as this and other aspects of the tube become 'second nature' or 'know how' they cease to be 'knowledge' as 'habit does not, of itself, know, for it does not of itself stop to think, observe or remember … as [it] is too organized, too insistent and determinate to need to indulge in inquiry or imagination' (Dewey, 1922a, p. 177). It is not knowledge in the traditional sense, therefore, as it 'lives in the muscles, not in consciousness' (Dewey, 1922a, p. 177).

6.3.2 'Living in the space in-between'

The previous section examined the ways in which travelling by the London underground was initially experienced as variously exciting, uncertain and in Gareth's case embarrassing. Additionally, it explored the role which new habits and meanings play in gradually transforming these novel and unusual situations into something that is organized, recognisable and familiar. It is important to emphasise,

however, that although excitement, novelty and uncertainty are the pervasive qualities of these initial encounters they are also mediated by a background of habits, objects and meanings which help to qualify the situation. In terms of the underground some rather obvious examples if we think back to Ryan and Gareth might include their ability to walk and move in and around stations, to recognise and follow various signs and maps, and possibly a familiarity with escalators, corridors and waiting platforms. In this context the mediating role of habit perhaps became more apparent when cyclists reflected on their initial experiences of cycling in Auckland and London.

In Section 5.5.2 we saw how Ellie gradually became less 'chicken' and more assured and mindful on the roads after getting some 'miles under her belt'. Prior to riding her Brompton to work for the first time Ellie had only ever ridden her first bicycle in parks around London. Like Ryan and Gareth her first time cycling to work was marked by a mixture of excitement and uncertainty but also fear as 'London roads are quite scary [especially if you've] never cycled on them before'. Purchasing a Brompton she initially 'thought [she] would … ride [her] bike to the station and then because it … folds up … take it on the train to work'. As we saw in the previous chapter she soon became a passionate cyclist, however, despite getting horribly lost:

> [The] first day I rode to the station and thought wow that was a bit quick I'll just keep riding and when I feel tired or something I will stop and get the tube. Well then despite I got really lost and it took a long time and I arrived at work sweaty and purple faced I did actually accidentally ride the whole way to work. And I thought that was the coolest thing. I couldn't believe what I have achieved. … And I kind of raved to everyone at work I was like [*puts on a different voice*] 'Oh my god ah I biked to work'. So then that was that really.

She attributed her initial difficulties in finding her way to work to having previously only travelled by the underground: '[T]he tube is quite poor' for 'your geography [and] for knowing where stuff is' as 'your sense of … London … becomes the tube map which isn't geographical at all'. In contrast, cycling she explained helps you to 'learn where things really are … it is quite a confident … or a knowledgeable feeling which is really nice. And you discover things that you wouldn't have found otherwise because there are things that don't have tubes near them'. Cycling has, in other words, changed her *sense* of herself and the city.

Over time such knowledge, or rather know how following Dewey, and experiences she has *had* have also resulted in the gradual transformation of her cycling habit. As a consequence she is now able to better apprehend, feel more in control or has a better *sense* of how to deal with various unexpected or problematic situations that arise on her commute:

> You get a lot more confident so you cycle differently in that you are much more aware of when you can run a red light, when it is actually safer to run a red light. What you should do. More aware of what other traffic is doing [like] buses, white van men [and] taxis. [Also learning] [h]ow to cope with other cyclists because they are actually the worst. […] [T]he 'Tour de France' [cyclists are] really serious … wear all the kit … go fast and … do things like over take you on the inside or get to close or just generally behave like dicks. [T]hen there … are [cyclists who are] maybe a bit ignorant, maybe they are not drivers. I find cyclists who aren't drivers really [frustrating] because they don't look at the right places and they are just a bit dopey [*laughs*].

Upon further questioning about her observation about 'dopey' cyclists not being 'drivers' she went on to explain even though she has never driven in London previous experiences of driving in New Zealand and the United States provide her with another way of mediating her encounters with cars:

> You know where to look if you are a driver … That you've got to be looking out here [*raising her hand points to right*] because everyone is on the left. [S]o you are always looking, and you know not to overtake someone and [to] look at what the cars indicators are doing and … respond to that. And you also know … to look at what a driver is doing and look through the glass into the car or the truck at where they are looking to be aware of what they are up to. Because you have been in that position yourself. But yeah the indicating thing is a big one you know.

Ellie demonstrates how her driving habits and meanings after initially playing a mediating role have over time become incorporated into her cycling habits and meanings.

Mike having only ever cycled on 'town roads', prior to moving up to complete a Masters degree, talked about having to learn to adjust the way he cycles in Auckland. In doing so he emphasised how habits or 'skills' developed cycling to school and mountain biking had greatly helped him to adapt:

> Yeah [I] definitely had [to change how I cycled in Auckland] because I [had] been used to town roads. Mind you I'd done a lot of cycle skills growing up. You know you don't necessarily learn all of the skills on a road bike because you often don't encounter some [of the] odd situations [you do in the city]. But […] I did a lot of mountain biking too so I gained a lot of skills and I think because of that […] when I get to traffic lights I don't need to clip out of my pedals [as] I can stay on my bike and stay in one spot […].

Despite these pre-existing habits, Mike emphasised the important role that his experiences of potentially risky and dangerous situations had played in helping him to learn to 'live in the space in-between' cars:

> [I had] to learn to ride between cars and stuff like that [which] can be scary. And I had a few experiences that […] I learned some lessons from like car doors swinging open, you never expect it to happen but it does. [And I learnt] that some cars can be unpredictable […], that was a lesson hard learned. Big open road and you are following a car probably a bit too close but hey there is no reason that they would stop for anything and then they just hit the brakes and pull in [to the side of the road] you know. I hit the back of one car. It was no major but […] I [tend to] beat myself up around stuff like that [just] because I'm frustrated that it happened more than how it happened. […] I probably push the limits a fair bit when I'm cycling but I've had very few crashes, probably two in the whole time I've been up here. […] I heard this really interesting [and] cool quote from […] a cycle courier in New York. [It is] mental the stuff they'll do [like] they are just not scared to run red lights, life threatening [stuff]. I wouldn't push it that far […] but he said 'we live in the space in-between'. And I quite like that because I kind of think well there is space there and as long as cars are predictable like there is no problem with us using that space in my opinion.

Coupled with his pre-existing cycle skills, such experiences he went on to suggest allow him to now 'move in harmony with traffic'. Consequently, Mike was reluctant to encourage novice riders to start commuting by bicycle in Auckland:

> … I think I move in harmony with traffic a lot better than … other people because I'm just use to it. And I don't know where they would get the skills from for a start. Cos I can move, remember I was saying I can move quick enough to move with traffic and with some of these people that are just starting out they move really slowly you know. So whereas at traffic lights I would wait right in the middle of the car, the first car. And I will move faster off, accelerate faster of the light than a car

> can and that gets me through the intersection safe[ly] and then […] I'll move to the side and cars can go past me. But the intersection is the dangerous part whereas a first timer if they are really slow of the mark you can't do that. You can't start in the middle of the lane. You've got to stick to one side which puts them in more risk and if they do they try to stay in the middle of the lane cars will beep their horns and get all angry at them you know.

Mike also demonstrates in this context how previous habits which originally mediated his early experiences of cycling in Auckland have helped his habits to evolve to the point which he now is able 'to move in harmony with traffic'. Notably, like Ellie these experiences have also altered the way he interprets the levels of risk or meanings that he now associates with dangerous encounters with motorised traffic. This is a point which is returned to in Section 6.5 section.

Lauren who has 'always cycled' recalled her early experiences of cycling in London in the following way:

> When I […] first moved to London when I was just out of university 22 [years old], and I was absolutely petrified and I didn't know how to cycle here. So I just learnt […] be a bit defensive, well not defensive, just position yourself on the road properly and don't be too risky and have lots of lights and reflective stuff on and stuff like that.

When asked her to elaborate on this learning process she emphasises that it involved readjusting her existing cycling habits to London's road infrastructure and, more importantly, motorists. This transition occurred, as she explains, in part through a process of active experimentation:

> […] I didn't take a course or anything like that [it was] just almost trial and error. It sounds like I had loads of accidents but I didn't. [I] just sort of went oh […] people are obviously responding in a different way if I move out into the road more. So just noticing how other people are responding. And occasionally doing things that frightened [me] and going oh I'm not doing that again.

The above excerpt captures the role that observation and reflective thought play in modifying an existing habit. Lauren explained when she first arrived in London she tended to cycle as close as possible to the curb of the roadside as she was 'petrified' of London traffic. Though her varied, and sometimes 'frighten[ing]', experiences of

cycling in London she has gained more confidence and, as she alludes to in the first excerpt, learnt to be 'a bit [more] defensive'. These experiences and, more specifically, particularly dangerous or risky encounters with motorists have triggered moments of conscious deliberation and her subsequent experimentation with her road positioning. She explained by moving further out into the road that she not only becomes more visible but that motorists are often forced to slow down when they pass her by as they typically need to cross the centre line in order to overtake (see Figure 6.3).

Figure 6.3. A video still taken from the second leg of my cycle go-along with Lauren in August 2013. In the interview she explained that when she became more confident cycling in London she started to experiment with where she positioned herself on the road and observed motorists responses. As captured in this image, moving further out from the curb increases her visibility and often forces motorists to slow down as they need to cross the centre line when overtaking.

Elsewhere she discussed how she has had to learn to negotiate particularly 'frightening' junctions such as one on 'the other side Kew Bridge':

> You can cycle on the pavement [over the bridge as] it is a shared path until the bottom and then you have to merge with the traffic. [P]eople are coming at you from all different directions and yeah I was just not […] use to that and […] didn't time myself going out into the traffic very well. [It was] just [me] not being use to the aggressive London drivers and […] lots of traffic and people kind of diving through [amber] lights when they should really stop (see Figure 6.4).

Figure 6.4. A video still taken from the first leg of my cycle go-along with Lauren in August 2013. We are approaching what Lauren described as one of the more "frightening" junctions which she encounters on her commute. This is because cars coming over the bridge can travel straight ahead or turn off to the left. Other motor vehicles such as the black car and the white van can also join from a street located to the right hand side of the road.

On both return commutes we stopped at the bottom of Kew Bridge and waited to merge into the traffic. While waiting she observed another cyclist had been killed at this particular junction. She explained in the interview she always exercises particular caution here as even though it can appear to be safe often it is not:

> [When] I get to the end of the pavement bit where you are allowed to cycle […] I just wait […] until everything has come to a standstill basically because there is a bit where there [are] keep clear signs and traffic can come in from the right and go across. So I just make sure that there is no possibility that anyone can dive through. Just wait for it to be completely stationery.

Overall, Lauren's account like the others presented in this section is illustrative of the ways in which people gradually learn and adjust to transport systems and infrastructure, travelling and commuting in a new city. Her account in particular illustrates the ways in which the initial transition period is marked by uncertainty, worry and experimentation, while others such as Ryan and Ellie highlight how it can equally be a time of excitement because of its novelty. Moreover, as new adjustments are made and corresponding new habits form, what originally occupied the conscious foreground of a situation increasingly merges into the sub-conscious background.

Earlier habits and meanings are transformed through repeated encounters and what were once novel and indeterminate increasingly become more settled and stable. Consequently, people gain a sense for the situation (Tiles, 2003) which ensures action, in contrast to libertarian paternalist and social psychology accounts, is guided by more than simply impulse, arousal, inertia and procrastination or a response to environmental stimuli. This of course is not to imply that future situations will not be unpredictable as they always entail a ‘‘stable’ or formed structured aspect’ and ‘a ‘precarious’ or dynamic aspect’ (Alexander, 1987, p. 110). As we saw in Ryan’s case the mediating role of habits, consciousness and meanings alter the way in which they are experienced. They are perhaps no longer novel or exciting but instead routine or mundane.

6.4 The arrival of the mundane commute

This section explores the arrival of what is termed the routine or mundane commute and the ways in which it is undergone or had by various commuters. In doing so we see how the transition from the novel to familiar is differently experienced and the meanings assigned differ. Some actively try to avoid the mundane by mixing the commute up, others grin and bear it accepting it for what it is while others learn to value and actively use their travel time. Particular events such as getting lost, close proximity to others on public transport, being stuck in traffic or risky encounters with cars which were in the past felt as bodily impressions (i.e., excitement, delight, stress, anxiety or fear) progressively lessen. As Section 6.4.2 illustrates the various demands of commuting which individuals endure or undergo in experience become easier to bear as the self is reconstituted through habit or ‘subtle, slow creep transformations which gradually build up over time’ (Bissell, 2014a, p. 192; 2014b). In doing so they help to illustrate how habits are much more than merely unreflexive, automatic and mechanistic responses to environmental stimuli. Instead, as each of these subsections highlight they are modes of response which allow individuals to use and incorporate these social and physical environments in different ways.

6.4.1 Mixing up the commute: Avoiding ‘Groundhog Day’

Rachel, who was living in Edinburgh before she moved to London, explained how the decision on where to live was one that she carefully planned:

> I moved down for a job actually. […] So and actually for the first time I sort of decided where I was going to live based on travel. You know […] was moving to London and thought where am I going to live? Massive place, never lived in London before. Ok get a Google Map plot where my friends live. I'd been down and swum in a brilliant lido, the London Fields Lido, which is […] a 50 metre [open air] heated swimming pool. Plotted that, plotted where Croydon was and looked at the main train lines and just thought there is no way I want a long commute I want to make this as easy as possible. So kind of traced up the different you know thought London Bridge, Farringdon and ended up living in Farringdon while I was working there. So I kind of commuted against the grain on the train and cycling down to Croydon for two years I think.

Rachel has subsequently moved a number of times around Farringdon and most recently to Stephney Green. This was because she 'wanted to be back in [her] own place' and 'nearer to friends' and in her view this area is more affordable on a single salary and has good transport connections. Such connections help her to visit both her 'friends from Scotland who are married with babies in south-west London [and] new friends … in east London'. Importantly, having access to a range of transport connections help her to avoid Groundhog Day[16], something that she was particularly worried about before shifting to London:

> My commute is different every day. And I do that on purpose because my biggest fear of living in London is that you get into a routine and end up doing the same thing every day, day in day out. That is like a fate worse than death for me [*laughs*]. So even when I worked in Croydon I just mixed it up and would take a different route in where I could. And so I might have two or three ways of getting in. And it is dictated by weather, what I'm doing before work, what I'm doing after work, if I have to be smart for a meeting. You know there [are] different things that will […] determine how I get in and out of work. [S]o I normally cycle but I might cycle on my Brompton, or I might cycle on my road bike or I might take like a Boris bike [*laughs*]. Depending on what I'm doing before and after. If it is really miserable, pouring with rain I will get the tube but it takes longer. But that is just so I'm not sitting in wet clothes for the rest of the day. Because it is not, it is a twenty minute, twenty-five minute cycle. So I cycle in my work clothes. The only thing I don't

[16] Groundhog Day is a 1993 film starring Bill Murray as a weatherman who wakes up one day to find that he is living the same day over and over again. This was a phrase used by another participant to describe the repetitive nature of his commute.

> cycle in is a pencil skirt because it doesn't allow you to [*laughs*]. But I will cycle in short skirts and I will cycle in anything. […].

Rachel here again illustrates the many ways in which cycling subjectivities are negotiated, contested, reworked and resisted in relation to the weather and dress conventions (see also Sections 5.4 and 5.5). She goes on to describe the different scenarios emphasising the main difference is the time they take and observing that Boris bikes are currently her 'favourite':

> […] I'm a five minute walk to the nearest [Boris bike station at the home end] and a five minute [walk] at [the work] end. And they are kind of heavier and slower and so that probably takes me more like twenty-five, half an hour journey time. So I sort of need to factor that in. So like this morning I was just kind of running, I'm always running late. And I always think I'll leave the house at half past seven [0730], I have to be in at work at eight [0800] and I always leave after that or I don't factor in that time that it takes me to unfold my Brompton and get down stairs or whatever that is. But that is the quickest way to just jump on the Brompton and do door to door. But then you are stuck with a bike all day, well not all day, I park it at work. And that's fine if I'm going home at the end of the day. But I love Boris bikes […] [and] it works perfectly when I've got one less than five minutes from my door and less than five minutes from [work] and […] everyone else is doing the opposite [journey] to me. So they are all picking up bikes from Waterloo […] so there [are] lots of spaces for me to drop them off […]. That is probably my favourite at the moment. Tube takes about 40 minutes but I sometimes do it just for a change. I sometimes get bored cycling the same route in and out. I try and mix it up with which bridge I come over and that is about it [*laughs*]. […]

Rachel illustrates once again how although pre-existing infrastructures, norms and subjectivities shape or condition individuals they always retain the ability to act upon these environments (see also Chapter 4). Like others living in cities such as Auckland and London she, albeit to a lesser extent, is somewhat limited by her circumstances. She has had to relocate to an area where she can afford a flat by herself and that is close to friends. At the same time she is fortunate enough to remain within close proximity to a number of transport connections including a Boris bike station and the Stepney Green Underground Station. In contrast, to other participants with families or who own their homes she still remains largely 'autonomous' and, therefore, retains more flexibility in terms of where she can live,

when she can leave home and the modes of mobility best suited to her own personal needs. This was certainly not the case for all participants as Section 6.4.2 demonstrates. Rachel also noted that another trade-off of maintaining this variability was that her morning 'routine [always] feels quite long … and not very [well organised]' as she often ends up having to 'find' or 'remember' all the different components associated with each different variation such as the 'Boris bike chip, coat, gloves, hat, helmet and lock'. In contrast, to other participants whose morning routines became more 'precise, graceful and effortless' through habit (Bissell, 2014b, p. 485), Rachel's continues to require thought and effort. Moreover, despite the variability she purposely builds in, her account still nonetheless illustrates how her experience of the commute continues to be mediated by existing habits and meanings associated with, for example, repetition, weather and cycling.

6.4.2 Grinning and bearing it: Making the best of a bad situation

Other commuters reflected on how over time they have had to learn to live with the realities of their commute. Brian has been driving by and large the same route to work for the last ten years (see also Sections 4.4.2, 5.1 and 5.3). He encounters Auckland's traffic congestion problems every day as he recounts here in describing how he gets to work:

> Well yeah I … leave the house decide which way I will get onto the motorway and that is the longest period of waiting as to enter to get onto the motorway itself at Takapuna. [S]o I might grab a coffee on the way through to that point or wait until a bit later in the commute before I go and get a coffee. But generally I might get a coffee on the way in heading into Esmond Road and then enjoy that while I'm edging along until we get onto the motorway proper. […] [T]here are serval coffee bars that are open at that time of the morning, quarter past-twenty past seven [0715-0720] [on Esmond Road] so usually [I] go to the one I prefer and go from there (see Figure 6.5).

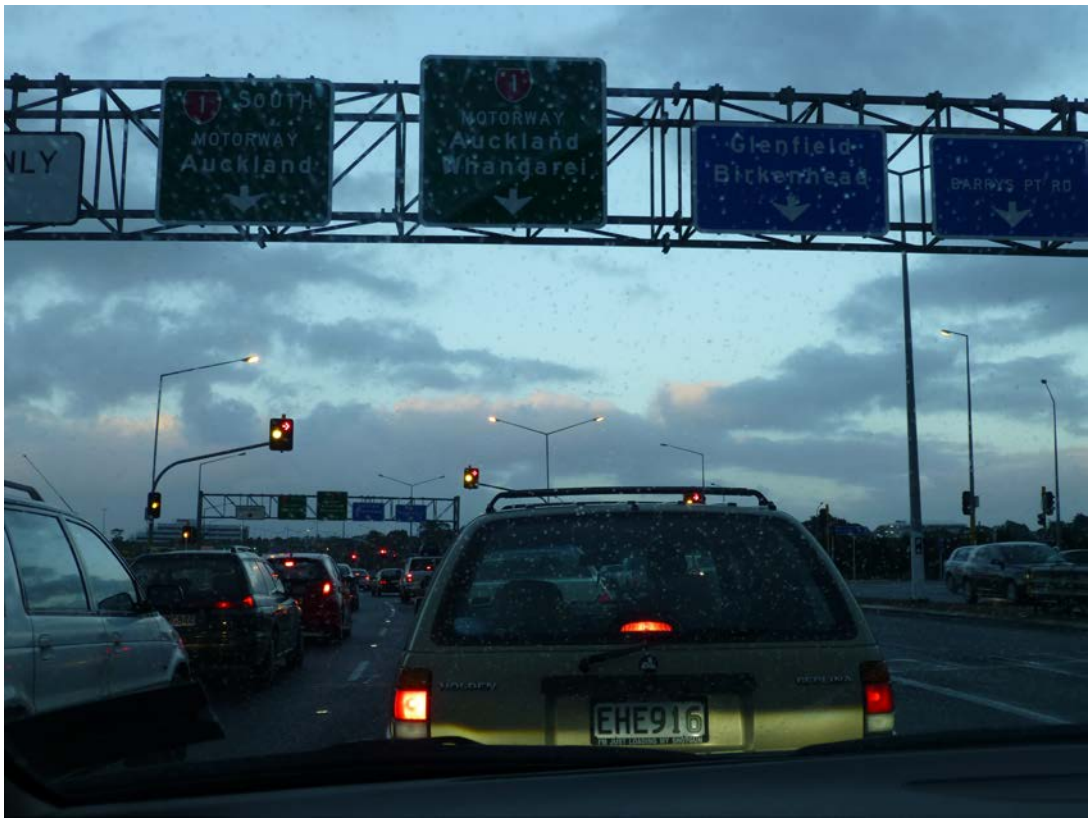

Figure 6.5. A picture taken in the early stages of a morning commute with Brian from his house in Takapuna located on Auckland's North Shore to Otahuhu located south-west of the city centre. He explained you have 'chosen where you live … [and] work and therefore you've got [no choice but] to go from A to B' despite the traffic.

Alongside enjoying his coffee he listens to 'talk back radio' or if he is a 'bit sick of that [he] turn's some music on' and 'just watch[es] the world [*laughs while saying*] *go by*'. In reflecting on how he finds the commute he observed that he has learnt to accept his fate:

> A lot of people would find it frustrating but having done it for years and over time having to commute further and further to the southern parts of Auckland to this point … I'm pretty laid back about that. Unless I'm late for an appointment somewhere and then it is a bit critical. But other than that it is what it is. You've chosen where you live you've chosen where you work and therefore you've got to go from A to B.

When asked to elaborate further he observed how through sheer repetition you sometimes end up on 'autopilot', whereby as you become habituated to the rhythms of the traffic it allows your mind to wander:

> … I mean I use to I remember in the earlier days when I was working even closer to the city than I do now. I'd sometimes think well how did I get to work? Your

> mind just wanders. You just drive. You just put yourself on autopilot and … listening to the radio so it all just helps pass the time. And you get there and you think 'oh' how did I get here and what happened on [*says while laughing*] *the way in* obviously nothing. So um and it's much the well it's not quite the same because you've got more motorway impact to be aware of so in the traffic flows and heavily flowing traffic so you are a bit more conscious of what is going on.

Similarly, in London many New Zealand passengers observed how they gradually cultivated particular habits in response to the socialites and materialities of the different time-spaces of their journeys (see also Section 4.5.1). As this excerpt from Katie's return commute from her workplace in Westminster to her flat in Marylebone illustrates, over time some of the peculiarities of everyday experiences, such as the fact everyone 'stops talking' when they board onto the tube, often fade into the unconscious background:

> It is a little bit after 5pm [1700] when Katie appears at the front door. … Walking to St James Park station she asks me what I am hoping to get out of travelling with people. I mention that sometimes as we go-along participants start talking about things they do or notice which they do not necessarily reflect on or mention during an interview. She responds: 'I'm trying to think of something interesting to point out but there is nothing'. A moderately busy District Line train to Upminster arrives shortly after we step onto the platform (see Figure 6.6). At first Katie suggests we will get the next one but at the last minute noticing there is some space in the door she asks: 'Should we'? We hurriedly board and a few moments later the door closes. We are only travelling one stop to Victoria.
>
> On the tube it is busy and there is not much space (see Figure 6.6) but not as crowded as other tubes I've been on previously. Katie is hanging on to the handrail on the ceiling with her right arm and appears to have a fairly vacant stare. She looks tired. Nobody is speaking. In between the automated announcements informing people of the next station the only sounds that break the silence are coughs, the screeching caused by the friction between the carriages and tracks and the sound of the tube accelerating and decelerating. It is not until a few moments before the door alarm sounds that Katie points out how she tries to line up the carriage exit with the station exit like 'everyone else'.

Figure 6.6. The picture on the left hand side is of a moderately busy tube and platform at a station on the London Underground, not too dissimilar to the one which we encountered on our go-along. The picture on right is from the commute with Katie from St James Station to Victoria Station on the District Line and captures the backs of the people standing in close proximity of me. It also highlights that while the tube was crowded there was still some space to manoeuvre and take covert pictures.

> As we depart the train and proceed to the Victoria Line platform she enquires: 'Do you notice how every time you get on the tube everyone stops talking? You could do a PhD just on that, behaviour in confined spaces'. Nodding in agreement I mention that I have been asking people about whether they talk on the tube in my interviews. She responds: 'No not even if you are with someone. You always or I always, feel a bit funny having conversations because everyone can hear. It is like that thing when people get in lifts and everyone faces the door. And no one ever says a thing' [London Field Notes, Tuesday 11 December 2012].

The above excerpt illustrates again how the go-along provides a particular mode of engagement which allows participants and researchers to reflect on their lives, habits and experiences of commuting. Moreover, it reveals how particular (public)mobility subjectivities have emerged as a result of London's unique habit infrastructures (Section 4.5.1). As has been argued throughout the thesis these habit infrastructures do not determine an individual's particular modes of response as these variously emerge over time through repetition, observation and reflection and sometimes collective discussions with other friends and colleagues. As Section 4.5.1 noted

common habits include catching earlier services, positioning oneself on the platform and/or within the carriage so they can get a seat or make a swift exit upon arrival at their stop and as is further expanded upon now the adoption of different approaches for dealing with the proximity of others.

Katie was not the only participant to notice that people stop talking and avoid eye contact mainly on the London Underground but also the London Overground and local and regional train services, especially during periods of peak hour travel[17]. In many of interviews 'behaviour in [these] confined spaces', to borrow Katie's words, was a source of amusement, curiosity and frustration. Becky who had only been living in London for three and a half months at the time of our interview also touched upon this:

> I noticed it immediately upon getting here like people just don't make eye contact and if you do, it is super awkward. [You] have to pick an unnatural spot on the wall to look at. Where you might usually look straight ahead you have to look up at the ceiling. [E]ven looking at the window across from you, you realise 'ops' I'm accidentally looking at the [reflection of the] person beside me. Does he think I'm staring at him? Is this about to get aggressive? Oh and you can't just stare into the distance [as] whops I'm freaking that guy out.

She went on to note that when she briefly visited London before getting a job there someone had 'jokingly, semi-jokingly said to me it is an offence to stare at somebody […] [so] watch out they will cut you [*laughs*]':

> They were joking but I've had people say a similar thing quite a few times now. I mean I haven't seen it in action but I have seen how it can get a bit you know awkward. You are trapped in a really small space and it is just like if someone is standing right next to you shoulder to shoulder you wouldn't turn and look them in the face because it would be odd and it is kinda like that. It is like everyone wants to stay in their own little world and forget that you know we are sort of trapped underground together (see Figure 6.7). I often wonder if what would happen if the

[17] A number of participants noted that they did sometimes interact with people but these typically tended to be during periods of delay or disruption (e.g., to services, children or tourists on the tube), outside of peak commuting times such as late in the evening or on weekends. Similar interactions were observed during periods of participant observation in London. Additionally, it was noticed that people would sometimes interact with a partner or friend upon boarding but often would then reduce the volume at which they talked at if they continued to do so on the tube.

train broke down for a long time especially if it was really packed. How long would you have to be sitting there together before people would start to interact?

Figure 6.7. These two images taken during the morning on the Northern Line (left) and the District Line (right) capture commuters using newspapers, smart phones, eReaders (i.e., Kindles) and tablets to help them escape into their own 'little world[s]'.

Becky has sought to find activities which help create a 'little world' of her own on the commute and help her to escape such awkward encounters:

> Lately I've mainly been listening to podcasts. When I first got here I was listening to podcasts that are like say 40 minutes about a topic. So I might get through like one of those on my commute there and one back. So I would listen to a couple of them a day. And then more recently I've been listening to audio series but I've suddenly caught up [on that] so there [are] no new episodes so that has stopped. But I was listening to that which I quite liked that because it took me more out of where I was because it was like watching a TV show but audio so [*laughs*] [I] just sort of totally zoned out.

When the audio series finished she decided that she would try to 'start reading more' but soon found that it was difficult to read if she did not manage to get a seat:

> So I tried to always have a book on me but that only lasted a couple of weeks because if you don't get a seat it is really difficult. Especially if it is so packed that you can't even plant your feet apart you really have to hang on to something

> otherwise you are all over the show. So it is pretty difficult to keep control of your bag and coat and to hold onto a pole and hold a book open. And then how are you supposed to […] change the page [as] you are […] [only] stationary [at the station]? So yeah pretty much back to the podcasts, I occasionally listen to music but I […] like the things that distract me more whereas music is just sort of background. [T]he great thing about a book, or a Kindle if you have one, I'd love a one, [however, is] you've got something to look at. Because when you are listening to your iPod or not doing anything at all it is [once again that] awkward thing of where do you look?

Ryan, like Becky, has developed a range of activities that help him to 'escape' his commute. Travelling back on his evening commute he contrasts his approach to commuting with that of his wife:

> The thing about commuting is that it is a necessarily evil. And I do things to make it as comfortable as possible. My wife doesn't like commuting and I think she hasn't accepted it and doesn't engage with. The thing is I don't engage with it at all. I just read a book or something. And I'm set doing that and that's fine. It works well. She is sort of rebelling against it and going commuting is horrible.

His ability to read on the tube is greatly assisted by his Kindle which allows him to carry a large number of books on a small and portable device. Ryan like many commuters is not always assured of getting a seat. In such instances he has learnt to adapt the way in which he reads rather than abandoning the pursuit as Becky does:

> If I can get a seat fine I'll sit down and read my Kindle. If I can't get a seat I usually want a hand free to hold something right? So I'll usually read a different book on my iPhone. I've got a Kindle app on that. So I can do that with one hand easily. So it's just a slight difference. I could read the same thing but for whatever reason I usually read short stories on my iPhone and slightly lighter things whereas I've got more, longer, [dedicated] books on my Kindle.

Working long hours and living with his wife and nine month old daughter Ryan emphasised that his commute was the only time he got to read. Correspondingly, in his initial interview he discussed the frustration of seeing someone he knew on his commute:

> Actually you will find this funny. In the last year or so, I bumped into a guy I play rugby with [on my commute]. We've played rugby together for maybe 6-7 years. So you know we are quite good mates and get on with each other. I was really annoyed

> when I saw him there because I wanted to read my book and now I have to talk to him. Why did I say hello? I could have just turned around and pretended I couldn't see him.

Ryan's agitation at having to talk to his friend it could be argued, stems in part from his desire to read, a desire that has emerged in a particular environment and been incorporated into the body through repetition (cf. Dewey, 1922a; Ravaisson, 2008 [1838]). Additionally, his account briefly illustrates how the time and space of the commute can become and be seen as particularly valuable.

Becky and Ryan's accounts also illustrate the ways in which existing habit infrastructures shape and condition the development of particular habits. It has been argued correspondingly that the way in which carriages have been configured on many European trains including the tube has contributed to the development of such customs:

> The nineteenth- century European railway carriage placed its six to eight passengers in a compartment where they faced one another, a seating plan derived from the large horse-drawn coaches of an earlier era. When it first appeared as train seating … this arrangement provoked a sense of 'the embarrassment of people facing each other in silence' for now the cover of noise in the horse-drawn carriages was gone. The comfortable smoothness of the railroad carriage, however, permitted people to read by themselves. The railway carriage filled with close-packed bodies who read or silently looked out the window marked a great social change: silence used as a protection of individual privacy. On the streets, as in the railway carriage, people began to treat as their right not to be spoken to by strangers, to treat the speech of strangers as a violation (Sennett, 1994, p. 343).

Carriages on London Underground and Overground trains continue to be designed mainly with the aim of increasing carrying capacity during peak times. Figure 6.7 highlights how seats on many lines are now typically located along the wall as this provides space for people to stand in the aisle. When vacant, however, this means, like earlier nineteenth century carriages, that an individual looks directly at anyone sitting opposite of them. As Becky observes this is not typically considered appropriate. This section has explored the transition from a new to a routine or mundane commute. Section 6.4.2 especially focused on the ways in which this also often involves a transformation in relation to how the commute is experienced and its

associated habits and meanings. Despite this as Section 6.5 now illustrates individuals still routinely encounter problematic situations on their commutes. In doing so it seeks to emphasise how such transformations, however, condition the ways in which people respond to these challenges.

6.5 'Problematic situations' and the mundane

Section 6.2.1 observed that many social psychology theories emphasise that disrupting the environment which cues an individual's automatic response can be essential if an individual's habits are to broken or defrosted. Some social psychologists have accordingly suggested that certain life events such as having a child which disrupt people's routines can provide 'windows of opportunity' in which to deliver habit-breaking interventions (Bamberg, 2006; Darnton et al., 2011). It was argued that such an observation corresponds with the importance that Dewey places on problematic situations as moments which give rise to deliberation and reflection. Moreover, in recognising these 'windows of opportunity', social psychology accounts it was suggested overlook, as Section 6.5.2 illustrates, how habits limit and contextualise thought. Equally, there is no recognition of as Section 6.5.1 demonstrates how habits can be gradually reconstituted through reflection and deliberation, which is directed by and occurs within a fabric of undisturbed habits and meanings.

6.5.1 Defensive riding and re-interpreting close calls

In learning to negotiate traffic, dangerous roads and intersections, as illustrated in Section 6.3.2 (see also Section 5.5.1), cyclists in Auckland and London have drawn on and gradually adapted various skills they have previously learnt in other, and sometimes very different, contexts. The adoption of particular strategies discussed here were common amongst cyclists in both cities (see also Fincham, 2006; Jungnickel & Aldred, 2013; Spinney, 2010). These accounts again reinforce the argument made in Chapter 4 that the existing urban forms and transport infrastructures in perpetuating the dominance of the car also shape the experiences and associated habits of other road users. For regular cyclists close calls or near misses are always part of the qualitative whole or situation associated with cycling.

Phil alluded to this in Section 5.5.1 when describing what it was like to cycle in Auckland. A point he elaborated on elsewhere in the interview:

> [In Auckland] people have no awareness at all and […] don't see anything outside of their car, which is bad enough when you are in a car. But when you are on a bike and people come past you they are [extremely] close. Buses will pull past me and then pull in literally right in front at the bus stop. You know what are you fucking doing? And why could you not wait it would have taken me another second or two to get past the bus stop. People actively kind of drive at you every now and again … if they wanted to knock me off obviously they would … but they are just trying to buzz me. You get a lot of people shouting out windows and stuff like that […].

Cyclists as we saw develop particular strategies and tactics for dealing with their vulnerability. As Nick described, retaining a sense of the situation is a particularly important aspect of a defensive or conservative riding strategy:

> But I will always assume that someone will pull out in front of me. [I ride] conservatively in terms of speed. [I]f it is flat, straight and clear then no worries about speed. But … going down a hill if there [are] roads that come out onto that hill I'm pretty conservative as to how fast I go. [I also alter] where I ride my bike. … [T]here [are] situations where I will ride further towards the centre of the road purposively to stop someone trying to pass me for a short section of road if I know there is a concern there. […] If a truck passes or a bus passes me I typically won't pass it back at a set of lights because those are the sorts of the vehicles that take up a fair bit of room. So … it is just about being aware of who is around you and what they are doing.

In Phil, Nick and the earlier cyclists' accounts we see how retaining a sense of awareness remains an important aspect of cycling. Similarly, in Section 6.3.2 we saw how various aptitudes and abilities Mike developed cycling to school and riding on off-road mountain bike trails were particularly important in this context. Correspondingly, he talked about how he has also learnt to adjust and control the way he responds emotionally during potentially dangerous encounters with Auckland motorists:

> I don't know if it is worth mentioning as well but I certainly had an attitude adjustment after 3 years of being up here. I use to get quite angry at cars and I think I just use to be really aggressive and yell at cars that do me wrong because they do

> all the time. It is a daily occurrence but um I'm prepared for it […] whereas before I would let them know that they had wrong[ed] me. I think now I just wait for them to look at me and I find that 95% of people don't mean to do it. And […] it is self-regulating they realise they have done it and they've learnt a lesson from it. So I don't feel as if I need to remind people of that or rub it in it's like it just winds them up and it makes them have a bad day, it winds me up. I don't need to do it. So these days [the] only people I'll yell at [are those] who do it intentionally which people do or […] some people will wrong me, they will cut me off or open up a door or something and they wouldn't have realised they have done it, like they haven't seen me. And for those people I won't be aggressive I'll just yell so they know I'm there and they've seen me and then once again it's had the impact that they realise.

This 'attitude adjustment' as he intimates was by no means instantaneous. Rather as he goes on describe below it was something that he has had to consciously cultivate and work at over time:

> [I]t was a conscious thing too. […] I learnt once […] about hijacking, have you ever heard of the term hijacking? [It is] when your brain overrides your common judgement. [So] the primal part of your brain [takes over and] it happens when you are tired and angry. [A]nd so I found I was hijacking quite a lot and […] that is when I would fly off the handle at people. And I learnt this thing that basically you've got a split second after something happens to decide how you are going to react to it and I made a conscious decision to do that more often. [I] take that split second and use it and just think […] this could go one of two ways you know and […] yeah maybe call it maturity but it's kind of allowed me to think about these situations a bit more objectively. And it has kind of changed my personality a bit I guess.

Mike's account illustrates the conscious and unconscious work involved in developing different 'ways or modes of response' to particular situations (Dewey, 1922a, p. 42), in other words, forming a new or modifying an existing habit, a point to which we will now turn.

Each of the above excerpts illustrate how in the past a range of events encountered almost 'daily' on his cycle commute to work, such as being cut off by cars and people opening their door as he approaches, use to elicit a range of emotional responses including anger, aggression and shouting. Such responses, moreover,

highlight how emotion, 'called out by objects, physical and personal' as a deliberate 'response *to* an objective situation' (Dewey, 1929a, p. 390), emerges out of the 'fluid boundary connecting' an individual and an event (Hildebrand, 2008, p. 28). A car pulling in front of him or a door opening in his path, to put it another way 'interrupts and inhibits' his cycling habit and creates a tension which is 'experienced as emotion' (Hildebrand, 2008, p. 28). As he goes on to demonstrate in his discussion of 'hijacking', such a habit, however, is plastic and through varying degrees of time and conscious and unconscious effort can be modified. For Mike this has involved developing a new empathy and understanding of (e.g., '95% of the time they don't mean to do it'), and repressing and re-channelling his previous aggressive and angry tendencies towards (e.g., 'I'll only yell at people who do it intentionally' or 'wouldn't have realised' otherwise), the motorists he encounters in such situations. Notably, Mike observes at the end of the second and the following quote that this transformation has to some extent also 'changed [his] personality':

> I mean I still hijack [in other parts of my life] and […] it's going to be challenging having a little baby where you deal with stressful situations and you are tired because I don't deal with being tired that well. [But] yeah it certainly has [as] you can choose to things like [rather than] getting frustrated with people for [what they do] […] you think is it really them or is it [the] angle that I've come at this with. [Have I come at this from] the wrong angle? […] [Y]ou know once again did that person [who] cut me off mean to do it? Do they need to be yelled at to feel bad for it or have they already kind of found out what they needed to find out? Um so yeah it certainly has [changed me].

In this way Nick illustrates how habits can be gradually reconstituted through reflection and deliberation and due to the ways in which they interpenetrate with other habits reconstitute one's self or subjectivity which has implications for other spheres of everyday life (see also Bissell, 2014a, 2014c).

6.5.2 Planning ahead: Anticipating parental roles and responsibilities

In Section 6.1 we saw how Emma encounters a number of trials and tribulations in the course of negotiating her various parental duties and responsibilities alongside her work day. This subsection explores how when a child starts pre-school or school this presents new challenges for parents who end up co-ordinating dropping off

and/or picking up their child around existing work commitments. Emma illustrated this during the initial interview which took place not long before her daughter started school:

> I think between the eight [0800] and the nine [0900] that's where my day is about me. That's half the reason Ben will take Chloe to preschool so I've only got one to deal with. And I'll often put Isaac into a play thing or get toys around him and if I've had a shower, if I'm lucky enough …, I can then go and choose my outfit for the day. And I've got to think ahead … am I meeting people or am I just having an office day. So I'll get my clothes … try and flick my makeup on and … and blow dry my hair. Everyday things for a normal woman who don't have children become quite busy for families or mums…. I try and choose my clothes, get my make up on, do my hair, make the beds, chase Isaac around from wherever he has hidden in the house [*laughs*] and then the thing … I find hard … is getting out the door. I'm finding, I'm gathering, I've got to take bottles for him for his formula at day care…. I've got to grab nappies. I'm grabbing my work. So I'm often doing two or three trips out to the car. Loading him, loading all the gear [and] checking the house making sure … I haven't left an appliance or lights … on, doing the final sweep of the house, turn the alarm on and out the door. So it literally is a juggling act and I'm dreading my daughter going to school because I'll be doing both of them as of next week because school doesn't start till eight forty five [0845] and my husband just can't be that late to work. So it has been great having him help me drop one off and then me have an hour just to get up to day care and get the other one up but that is about to change.

Here, Emma illustrates how once again a problematic situation which frees impulse to energize deliberation and inquiry. Some social psychologists it has been observed suggest her daughter starting school may present a 'window of opportunity' to encourage a habit breaking intervention. In Emma's case this change in fact only serves to reinforce her use of the car as it allows her to negotiate her complex spatial and temporal life-work schedule (Dowling, 2000, p. 349; Dyck, 1990; Rosenbloom, 1992). She explained on her subsequent go-along this schedule now includes buying a coffee and breakfast on the way to work after dropping off the children (see Figure 6.8). Other participants had different and varied parental roles and responsibilities although like Schwanen (2007) has asserted often these are 'underpinned and informed by rather traditional gender norms' (p. 460) associated with household 'division of labour' (p. 459). As Section 5.4.2 and Ryan's account now highlight

practices of ‘fathering’ are changing, however, with fathers increasingly taking on various caregiving roles and responsibilities (Aitken, 2009).

Figure 6.8. This image of Chloe and her classmate’s school bags hanging up outside of her classroom was captured shortly after Emma had dropped her off at school. Five minutes earlier she dropped off her son Isaac at preschool across the road. Upon returning to the car she explained: ‘the next part of the journey is normally my coffee [and] breakfast pick-up which is what we will be doing because there is no way that I can’t do that part [*laughs*]. … [So] we left at thirty-four past [0834] and already it has taken me just under twenty minutes to get on the road to work so it is quite an ongoing mission’.

Ryan noted on his second morning commute that he and his wife were currently renting a flat in an apartment block while their recently purchased new house undergoes some renovation work. A short way into our walk to Kilburn Station on the Jubilee Line he explains that he now has two routes to work. He points out the road which he would normally turn right onto four out of five days of the week. This route takes him out of his way but allows him to drop off his 17 month old daughter at nursery in Kilburn before carrying on to his workplace in Moorgate. Later while waiting for the Jubilee Line on the platform at Kilburn Station we talk about taking his daughter to nursery:

Brendan: And so how long have you been taking her to nursery?

Ryan: So today is the one day that she doesn't go to nursery. She is at nursery four days a week. […] I [take her] most days. It depends. If I've got an

early meeting I can't. But usually I'll just take her. And usually [Laura] will pick her up. In fact almost always [Laura] picks her up.

Brendan: And is it quite close to where you live?

Ryan: Yeah it is […]. So it is probably a 10 minute walk. I'm not sure what we are going to do when we move because I think it will be quite inconvenient from there but I think we'll just keep her there and just have to leave a bit earlier which is alright. There are worst things [*laughs*].

Brendan: So does that mean you potentially bus down there?

Ryan: Yeah we'll bus down there and then come back to Kilburn this way. I think it could be alright I think. It will just be … to be safe probably almost a half hour adjustment although it won't actually take that long. But […] probably start doing that to err on the side of … caution.

This brief interchange with Ryan reflects how increasingly dual-earner households have begun to juggle employment and caregiving by co-ordinating their commutes and working day around dropping off and picking up their children from childcare providers and school. Fathers such as Ryan are often taking on at least some of the responsibility for chauffeuring children (Schwanen, 2007). Simultaneously his account illustrates how it is often mothers such as Emma and his wife Laura who end up having to 'monitor and renegotiate' the juggling of 'employment and [the] escorting' of children (see also Jarvis et al., 2001; McDowell et al., 2005; McDowell et al., 2006; Schwanen, 2007, pp. 455-456). In the context of this current chapter his account also reveals how his undisturbed habits provide fixed objects and meanings as 'instruments of [the] solution' (Scheffler, 1974, p. 218). As Ryan observes when they eventually shift into their new house this will require a half an hour adjustment in the time they leave home. Such an adjustment will likely mean he will have to get up even earlier if he is to continue going to the gym before work two to three times a week or fit this into another part of his day. Unlike Emma, and reflecting how London's habit infrastructures condition everyday mobility, he will most likely end up catching the bus with his daughter to pre-school. Despite their differences both Ryan and Emma's accounts remind us of how existing habits always channel thoughts and provide the fabric within which thinking occurs.

6.6 Conclusion

This chapter has sought to move beyond individualistic understandings of habit and thought underpinned by dual-process or dual-system theories in four main ways. First, the characteristics and limitations of dual-process or dual-system theories and the ways in which these ideas have informed libertarian paternalist and social psychological approaches were explored. In addition to not accounting for the ways in which choices are conditioned by infrastructures, norms and subjectivities, it was asserted libertarian paternalists also fail to recognise the role that habits, meanings and deliberation and reflection play in mediating individual's interactions with their social and physical environments. Meanwhile, it was argued that although some social psychology accounts at least recognise the role that problematic situations play in generating reflective thought they still conceptualise habit and thought as polar opposites and the former as simply unreflexive and automatic responses to environmental stimuli. Instead, following Dewey the chapter asserted that habit and thought should be understood as different phases of experience in which habit always channels thought and provides the context in which thinking operates. This understanding was then used to examine how over time habit and thought shape practices associated with, and experiences of, commuting and what these further reveal about the limitations of dual-process or dual-system theories.

Second, people's initial experiences of catching the tube and cycling were examined to reveal the ways in which people progressively learn to adjust to transport systems, travelling and commuting in a new city. These early experiences were demonstrated to be characterised by excitement, uncertainty and experimentation. Subsequently it was illustrated how as new adjustments are made and associated habits form what initially dominated the conscious foreground of a situation gradually merges into the sub-conscious background. People correspondingly gain a sense for the situation as earlier habits and meanings are transformed through repeated encounters. In contrast, to libertarian paternalists and social psychology, action is thus not simply a response to particular environmental stimuli or guided by impulse, arousal, inertia and procrastination. Instead, these habits which sometimes emerge out of reflection and experimentation allow individuals to develop sometimes sophisticated modes of

response which use and incorporate features of their social and physical environments.

Third, the arrival of the routine or mundane commute and the ways in which it is undergone or had by various commuters was explored. In doing so it was argued that individuals experience and negotiate the transition from the novel to the familiar in different ways including by trying to avoid routine, learning to live with it or by actively using and valuing their travel time. Importantly, it was argued that habits far from being automatic and mechanistic responses instead allow individuals to slowly adjust to the demands of commuting such as close proximity to others on public transport, being stuck in traffic or risky encounters with cars. These often subtle, slow creep transformations thus alter the ways in which individuals experience their commutes and the meanings they associate with it.

Fourth, the ways which even mundane commutes are still associated with problematic situations and how people's responses are mediated by their habits and meanings were highlighted. To begin it was shown how some cyclists gradually learn to re-interpret and alter the way in which they respond to close calls with car-drivers. This illustrated the importance of recognising how habits can be broken or defrosted but also how they can be gradually reconstituted through reflection and deliberation. Moreover, the ways parents attempt to anticipate and negotiate chauffeuring their child/ren to school and childcare providers illustrated how although these may present 'windows of opportunities' as people reflect on their existing routines the solutions they generate continue to be directed by and emerge out of a background of undisturbed habits and meanings. Overall, then Dewey writings of situations, habit and experience helps to reveal the limitations of existing dual-process and dual-system theories. More importantly, unlike socio-technical and some practice based accounts he provides a way of rethinking and revaluating the relationship between habitual and reflective phases of action which recognises their situated, relational, more-than-individual and emergent characteristics.

Chapter 7.
Conclusion: Towards a low carbon commute

7.1 Introduction

> When developing low-carbon transport systems, behavioural change and infrastructural investments are often as important as developing more efficient vehicle technologies and using low-carbon fuels (Sims et al., 2014, p. 648).

This opening excerpt is from the *Transport* chapter in the IPCC's *Climate Change 2014: Mitigation of Climate Change* report. It is illustrative of a growing recognition that if transport-related fossil fuel consumption and carbon emissions are to be reduced at least some degree of behaviour change is not only required but also, as the chapter's authors suggest, potentially *important*. Commuting, especially in cities, has been one site where states have sought to intervene, influence and change the actions and everyday mobility of citizens for sustainability and climate change. This thesis explores what contemporary commuting habits and experiences might reveal about the limitations of existing approaches to behaviour change. Correspondingly, it seeks to generate new insights into the challenges and opportunities for states seeking to develop low-carbon transport systems and cities more generally.

In conclusion this chapter considers the research aims and questions in relation to the findings (Chapter 4-6) and the conceptual framework (Section 2.5) and the contribution and future areas which arise out of the thesis. The remainder of the chapter is divided into five sections. First, Section 7.2 begins by momentarily re-examining the overall aims and focus of the thesis. Second, the research questions are examined in relation to the main findings from each of the preceding chapters (Section 7.3). Third, the chapter reflects on how a Deweyan-inspired approach generates a particular approach to researching and analysing everyday mobility, and in action more generally, and some of the strengths and limitations of this framework (Section 7.4). Fourth, the research implications of this thesis in the context of debates on behaviour change, climate change and mobility are considered (Sections 7.5.1-7.5.2). Fifth, the chapter concludes by elaborating on some of the future areas of research emerging out of the thesis (Section 7.5.3).

7.2 Reflecting on the aims of the thesis

The overall aims of this thesis are two-fold. First, to examine, in the context of debates on behaviour change, climate change and everyday mobility, the limitations of dominant understandings of the environments and phases of action. Second, to demonstrate how these dominant understandings can be advanced by an approach to action which is informed by Deweyean pragmatism. In doing so the thesis seeks to contribute to critical studies of behaviour change, climate change and mobility by providing a dynamic understanding of how action and subjectivity continually emerge out of an individual's interactions with their social and physical environments. This is important because everyday mobility is typically understood in terms of transport behaviour whereby individuals travel by car, public transport, bicycle or on foot, out of 'choice' or even more problematically, 'habit'. If the behavioural shifts deemed necessary by the IPCC (Sims et al., 2014), states (DfT, 2004, 2011, 2013) and others (Anable et al., 2012; Banister, 2008; Chapman, 2007) are to be realised then cities become particularly important sites of intervention and response (Banister, 2008, 2011; Bulkeley, 2010; Bulkeley & Betsill, 2003).

If cities are to play a significant role in addressing transport-related sustainability and climate change imperatives this will require at least some insight into how the histories, politics and materialities of physical environments shape everyday mobility. This thesis argues Auckland and London's physical environments, especially their transport infrastructures, have contributed to the establishment of particular discourses, social norms, values and ideologies. The role such physical and social environments play in the formation of mobility habits, experiences and meanings forms the focus of this thesis, which shows how these environments condition but do not determine individual action. It is argued these environments influence the material and discursive ordering of different modes of mobility which in turn shape the emergence of particular habits, experiences, meanings and subjectivities. As a consequence the thesis seeks to make an important contribution by demonstrating that behaviour change for the purposes of sustainability and climate change entails much more than simply changing individual choices or practices and/or technologies or infrastructures. Creating less resource and carbon intensive lifestyles requires the widespread modification of existing, or adoption of

new, habits which will not only change the way we inhabit the world but also who we are as individuals, our subjectivities.

7.3 Revisiting the research questions

This section revisits the research questions by examining the findings from each of the preceding chapters in three subsections. Each subsection addresses one of the first three research questions. Reflecting the significant overlaps between these questions, the final research question is considered in the responses to the first two questions, and there is some similarity between the second and third sections. As a reminder the four research questions outlined in Section 1.4.1 were:

1. How, why and with what consequences can the relationship between individuals and the social and physical environments of action be considered in non-dualistic and non-individualistic ways?
2. How, why and with what implications might habit be understood as more than simply unreflexive and automatic responses to environmental cues?
3. How, why and with what implications might the relationship between habit and thought be understood in a manner which is non-dualistic and non-individualistic?
4. What role do habit, experience and social and physical environments play in shaping subjectivity?

7.3.1 Individuality emerges within social and physical environments

Individuality it is argued is not 'an original possession or gift. It is something to be achieved, to be wrought out' through social and material relations once again that are always more-than-individual (Dewey, 1984, p. 61). These situated and more-than-individual relations are understood in two different ways. The metaphor of habit infrastructures is introduced in Chapter 4 as a way of understanding how people's habits, meanings and experiences of mobility are shaped by the city in which they live. Political decisions and infrastructural investments which have favoured the car since the 1920s in Auckland are shown to have significantly influenced the city's existing habit infrastructures (Section 4.4.1). Important events include the development of new housing settlements and industry in the suburbs, the dismantling

and replacement of the tram network with buses, the failure to modernise and extend the train network and the construction of an extensive motorway network. Meanwhile, in London it is suggested that the city's complex transport network and the introduction of the congestion charge in 2003 have been important in significantly challenging the dominance of the car especially in the central part of the city (Section 4.5).

It is demonstrated how these different habit infrastructures tend to generate locally specific habits, meanings, experiences and subjectivities (Chapters 4, 5 and 6). Auckland's habit infrastructures tend to normalise car use but also contribute to the development of new driving habits for local conditions and through social interactions the re-interpretation of previous understandings of car-based travel distances and times (Sections 4.4.2 and 6.4.2). The experiences of Auckland participants also highlights the compulsiveness of auto-dependent habit infrastructures and the extent and depth of (auto)mobile subjectivities they continuously help to (re)produce, as people become unaware or dismissive of public transport and critical of those who do not own cars. Those seeking to reduce the role of the car in their life following their experiences of London's less car-dependent habit infrastructures serve to demonstrate how individuals always retain a capacity to act. Simultaneously though their accounts again illustrate how social and physical environments preconfigure actions and thoughts as those who did gradually found themselves back behind the wheel, restricted by where they could live and work and being both reliant upon the generosity of friends and family for rides (Section 4.4.2).

London's habit infrastructures this thesis argues have in part promoted and produced particular (public)mobile subjectivities, which like the car are multiple and continually reproduced. These subjectivities are characterised by at least four similarities (Sections 4.5.1 and 6.4.2). First, reflecting the dependence on timetabled services, the significant distances travelled and the time involved which often result in a greater degree of personal and social organisation. Second, as public transport services rarely provide door to door connections they typically result in increased levels of preparedness for walking and being outside. Third, existing customs and infrastructures contribute to the development of specific habits of (im)mobility such as standing on the right of or walking up escalators and waiting at specific points on

the platform in order to be closest to the exit at the arrival station. Fourth, the close personal proximity to others often gives rise to habits which minimise the duration, intensity and in some instances the potential for these encounters. Examples here include catching an earlier service to work, positioning oneself on the platform or in the carriage to maximise the likelihood of getting a seat, and listening to music, reading books, newspapers or playing on smartphones or tablets.

Dewey's (1938) theory of situations is the second means through which the environments of action can be understood. Introduced in Chapter 2 it is employed in Chapters 5 and 6 as a way of drawing attention to how the social and physical environments are experienced as organic wholes characterised by immediacy and mediacy, actuality and potentiality, uniqueness and generalness. In different ways both chapters illustrate how understanding the external environments of action as co-constitutive of situations which are undergone (i.e., immediate, given or felt) or had (i.e., mediated by habits, meanings and consciousness) by individuals in experience. Chapter 5 demonstrates that although social norms and conventions around comfort, dress codes and fatherhood impact upon and are reproduced through individual's habits, they are simultaneously negotiated, challenged and change along with an individual's subjectivity. This is apparent in the way people dress and get ready for work, the meanings they progressively begin to ascribe to other modes of transport (e.g., the tube and bus) and the ways they gradually adjusted to, come to accept, or even value, the (dis)comforts of changing weather and seasonal conditions while cycling.

Similarly, Chapter 6 illustrates how earlier habits, meanings, experiences and subjectivities gradually change in very different mobility contexts as a result of repeated encounters with particular social and physical environments. It is observed how at first catching the tube, cycling or driving in a new city are marked in part by excitement, uncertainty and experimentation but over time as people become more familiar with these environments they are experienced as more settled and stable. As they become more mundane people gain a sense for these situations which can transform the ways in which they interpret social norms and conventions around, for instance, the convenience of the car at times of significant traffic congestion, personal space on the tube or the risks and dangers cyclists routinely encounter while

sharing the road with cars. Individual actions, thoughts and subjectivities it is argued, therefore, are always conditioned but not determined by surrounding social and physical environments (Section 2.5.1).

7.3.2 Habit as a force or a capacity

The thesis argues that habits are not merely unreflexive, automatic and mechanistic responses to environmental stimuli in at least four ways. First, rather than being a mechanistic and static response, habits are characterised by a special sensitivity to particular classes of stimuli. This is apparent in the way that cyclists developed different ways of anticipating, preparing and dressing for daily and seasonal variations in the weather (Sections 5.4 and 5.5). Rain, for instance, is by no means a generic or universal stimulus. If anticipated or noticed by looking out the window, listening to the radio forecast or through the use of a weather app, responses vary not only between participants but also for the same individual. The type, duration and likelihood of rain for some cyclists mean altering what they wear, riding a different bike, delaying their departure time or deciding not to cycle at all. Habits in this way are understood as modes of response to certain stimuli, rather than simply the repetition of previous acts, and the readier these responses become the less conscious thought they require and the more active they become. Different cyclists in this context develop rather intricate knowledge of specific weather features and patterns that were associated with their own requirements or needs. More precisely, the weather, like any event or object, only stands out when it has consequences for action such as needing to keep dry in order to avoid getting completely changed at work or when heavy rain, ice or snow made the roads too slippery to negotiate by bicycle (see also Section 7.3.3). The relationship between cycling and the weather correspondingly illustrates how although action can be separated into discrete acts (i.e., stimulus and response) it should never be interpreted in isolation from the series it belongs, in this case getting ready for and cycling to work.

Second, each of the empirical chapters illustrates how habits as ways of using and incorporating the social and physical environments always mediate an individual's experiences of these environments. This is apparent in the ways in which those who cycle, walk and catch public transport gradually adjust to and learn to accommodate daily and seasonal variations in temperature and rain through, for instance, wearing

different types of clothing and by carrying an umbrella (Sections 4.5, 5.4 and 5.5). On public transport, various objects such as books, newspapers, e-book readers, smartphones and tablets are employed as a means of escaping the situation, passing or making use of the time and avoiding awkward social encounters such as eye contact (Section 6.4.2). Meanwhile, cyclists illustrate how they had to adjust and develop particular strategies for dealing with the risks and dangers of cycling on Auckland and London's busy roads. Examples included being acutely aware of and anticipating what other road users especially drivers might do and riding in particular positions on the road such as further out from the curb in order to become more visible and to make it harder for cars to overtake (Section 6.3.2). These examples all demonstrate that habits are always situated, relational and more-than-individual (see also Section 7.3.1).

Third, the above examples also highlight how habits are also a source of constancy and change. Habits, as already alluded to in Section 7.3.1, provide a source of stability by gradually transforming what were once novel, unusual or problematic situations into something that is organized, recognisable and familiar. Such transformations also change the ways in which these environments are interpreted and experienced. Situations, or rather particular events, which were previously felt as bodily impressions (i.e., stress, anxiety or fear) such as the close proximity to others on public transport, being stuck in traffic or close calls and near misses gradually lessen. As Bissell (2014b, p. 485) observes the strains 'of the daily commute become easier to bear' as the 'agitations that once impacted with force lose their capacity to affect'. Moreover, what 'were initially movements that were clumsy, difficult and required effort, through habit become increasingly precise, graceful and effortless' (Bissell, 2014b, p. 485) such as riding a bicycle, catching the tube or driving a car. The ability to perform these acts largely without thought allows individuals to further develop these or new habits. For example, being able to navigate familiar environments while processing personal, familial or work problems, cycling in harmony with traffic or knowing when and where to get on the tube to increase the chances of getting a seat.

Fourth, as habits provide a source of constancy and change and do not exist in isolation but rather interpenetrate they are central to the development of the self or

subjectivity. Chapter 4 highlights how (auto)mobile and (public)mobility subjectivities are produced and promoted in part through the development of new habits in Auckland and London. Similarly, some people notice how cycling alters the functioning of their mind and body and by implication their sense of self in that they do not feel like same person on non-cycling days. Overall, then it is argued that habits which arise out of and function in action are active, energetic and dominant modes of response or dispositions which emerge in particular environments and are central to the constitution of the self (Section 2.6.1).

7.3.3 Habit and thought as different phases in human experience

The thesis argues it is best to understand habit and thought as different phases in human experience rather than polar opposites. The 'activity of thinking is just as much a matter of habits as any other form of bodily activity' including eating, walking or playing an instrument (Johnson, 2010, p. 131). For the ways 'we think are the result of developed and still-developing habits for working through experience' (Johnson, 2010, p. 131). This is apparent in the ways in which previous habits, meanings and experiences, and Auckland and London's habit infrastructures mediate how individuals act, reflect on and make sense of their own actions, in the social and physical environments of these cities. For example, Auckland participants discuss how using public transport and living without a car in London has encouraged them to think about walking and using public transport more and the necessity of owning a car upon returning to the city. Similarly, both local and migrant participants observe how they rarely even think about let alone consider using public transport in Auckland while those living in London can often not imagine owning or using a car. The nature of these thoughts is attributed to the fact participants intellectual habits are acquired in part through their experiences of living in these cities. Importantly, these habits like any others 'are realized in our bodies and brains, in relation to our surroundings' (Johnson, 2010, p. 131). 'It comes to us from others, by education, tradition and the suggestion of the environment' (Dewey, 1922a, p. 314).

Dewey's (1938) notion of the situation is employed in Chapters 5 and 6 as a way of comprehending the complexities of the environments of action including how habit and thought function and operate in experience (Section 7.3.1). Driving, walking, cycling, catching the bus, train, or tube, to work are argued to always unfold in an

organic whole, or a body-mind-world assemblage, a situation. People are gradually able to navigate and negotiate these environments largely without thought or on 'autopilot', it is observed in Section 7.3.2, due to habits which form and operate in action. These habits and associated meanings acquired through repetition allow individuals to get a sense for or an apprehension of the situation. This is possible because although each situation is unique they typically retain traits or similarities of those which have been experienced or encountered previously. People drive, walk or cycle down the same streets with similar flows of cars, pedestrians and bicycles or catch the same bus, tube or train, with similar volumes of commuters and a limited number of seats. Thinking only enters into action when these habits can no longer successfully function or when a situation becomes *problematic*. For example, when heavy rain is forecast (Sections 5.4 and 5.5), a regular train or tube service is not running because of a fault, an accident closes a road or a child is starting school (Section 6.4). Under such circumstances these events or objects are distinguished as functional parts of a situation and take on meaning because of the consequences they have for action. As Dewey observes 'thinking would not exist … in a world that presents no troubles' (1916, p. 19).

The breakdown of a habit once again illustrates that 'it is not *we* who think' but rather that 'thinking is something that happens to us' (Dewey, 1910, p. 34). In asserting the significance of *problematic situations* for thought the importance of drawing a distinction between thinking as the 'casual having-of-ideas' and as a 'structured, intellectual undertaking' is emphasised (Campbell, 1995, p. 57). The difference between the two is that reflective thought is 'deliberately controlled to be orderly' and orientated towards the goal of improving one's life by providing the 'solution to problems' (Campbell, 1995, p. 57). 'The function of reflective thought' in each of the examples highlighted above is to 'transform a situation in which there is experienced obscurity, doubt, conflict, disturbance of some sort, into a situation that is clear, coherent, settled, harmonious' (Dewey, 1986, p. 195, emphasis omitted). Even though problematic situations arise when dispositions breakdown, habits still remain significant. This is because intellectual habits, as already noted, are acquired, and as a result these dispositions limit the channels in which thought operates and provide a background of objects and meanings that allow individuals to assess and evaluate a setting. Consequently, following Dewey thought is located in the world,

rather than 'the mind', 'as an ongoing process of habitual ways of engaging experience, and sometimes of reshaping it' (Johnson, 2010, p. 131).

7.4 A Deweyan-inspired approach to understanding action

This thesis critically examines different conceptual approaches to understanding behaviour change and mobility, paying particular attention to how they theorise, research, and attempt or propose to, govern citizen's actions or behaviours (Chapter 2). Of those considered, John Dewey's pragmatist writings, especially on habit and experience, is used to develop a conceptual framework that understands the environments and phases of action in five interconnected ways. First, the individual continuously becomes a self or a subject through experience as they act on and simultaneously are acted upon by the social and physical environments (Sections 2.5.1 and 2.5.2). Second, habits which are formed and operate in action are active, energetic and dominant modes of response which emerge in particular environments and are central to the constitution of the self (Section 2.5.1). Third, the environments of action are experienced as situations which are organic wholes characterised by immediacy and mediacy, actuality and potentiality, uniqueness and generalness (Section 2.5.2). Fourth, events or objects, which are functional parts of situations, take on meaning through shared social activities but also in instances whereby temporary interfering or inhibiting action an event or object becomes problematic (Section 2.5.2). Fifth, habit always qualifies thought by limiting the channels in which it operates and providing a background of objects and meanings that allow us to assess and evaluate a setting and, therefore, habit and thought should not be understood as separate but rather as different phases in human experience (Section 2.5.3). The strengths and limitations of the framework are now considered.

7.4.1 The strengths and limitations of the framework

Action, in accordance with this conceptual framework, is considered to continually emerge out of an individual's interactions with their social and physical environments. Such an interpretation recognises the dynamic, relational, more-than-individual, contextualised and embodied nature of action. By acknowledging both the environment's capacity to act upon us and simultaneously our capacity to act on these environments, Dewey captures both the immediate or felt and the mediated or

stable character of experience. Unlike individualistic approaches Dewey emphasises that individuality is something that arises out of participation in grouped action, in particular time and place, rather than something individuals 'possess' and removed from their surroundings. A Deweyan-inspired framework, therefore, provides a means of overcoming a range of unhelpful dualisms such as mind-body, internal-external, subject-world and habit-thought, while in contrast to social practice theory still recognising individuality.

Deweyan pragmatism is also 'pluralist and inclusive and emphasizes the importance of a multiplicity of perspectives' (Sullivan, 2001, p. 5). One limitation of such pluralism is that it 'proceeds from a particular perspective with its own hidden assumptions and blind spots that are in need of critical examination' (Sullivan, 2001, p. 5). Notably, Dewey like other classical pragmatists rarely considered lived experience from the perspectives of gender, sexuality or race (Haddock Seigfried, 1996; Sullivan, 2001, 2006; West, 1989). Subsequent feminist interpretations, in particular, and the thesis to a lesser degree, have illustrated that as Dewey understands the self as emerging in relation to existing social customs, institutions and arrangements, his writings are by no means incapable of accounting for such perspectives (see Haddock Seigfried, 1996; Sullivan, 2001). Corresponding with Dewey's writings on power and subjectivity, another potential limitation of the framework is the extent to which it seeks to interrogate power and power relations (see Reich, 2011; Stuhr, 2002). Foucault's more critical analysis, as Chapter 4 argues, given their similarities might help strengthen this slightly less developed aspect of Dewey's writings. Despite these limitations, as Section 7.5 elaborates on this approach provides a means through which to both critique and advance existing ways of conceptualising and understanding action.

7.5 Research implications and future avenues of research

This section reconsiders the conceptual framework developed to address the research aims, objectives and questions and reflects on the contribution the thesis has made to critical studies of behaviour change, climate change and mobility.

7.5.1 Contribution to critical studies of behaviour change

Drawing on the conceptual framework and empirical materials the thesis critically examines what Jones et al. (2013, p. 164) describe as 'behavioural government' and the 'behavioural scientific foundations on which it is built' (see also Schwanen et al., 2012a; Shove, 2010). Chapter 2 argues that dominant approaches in psychology and economics tend to consider the individual as existing largely independently from their social and physical environments. As a consequence these environments are typically understood as simply external casual 'variables' or 'factors', or rather, 'motivators' or 'barriers to action'. Chapter 4 observes nudge theory does, albeit in a rather limited way, provides a method and way of explaining the role external motivators and barriers play in driving or preventing certain behaviours (Section 4.2). It is assumed people's automatic cognitive system, which dominates thought and action, shapes their interaction with 'choice architecture' and their decision making. In doing so nudge theory advances earlier individualistic approaches, for instance, from social psychology where barriers are simply considered to be 'weak', 'neutral' or 'strong' (e.g., Stern, 2000; Triandis, 1977).

Chapter 5 highlights that these earlier theories from social psychology have resulted in efforts to quantify different barriers. Such attempts it is observed can usefully reveal trends such as the effects of daily and seasonal variations in weather on rates of cycling. In doing so, however, these studies are not capable of explaining how or why these trends have come to exist or why they might change (Section 5.2). Despite attempting to advance such explanations it is argued nudge theory by still starting from the notion of the autonomous chooser also gives insufficient consideration of how pre-existing political, social and physical conditions constrain action and decision-making. Chapter 2 argues these individualistic models of behaviour perpetuate a number of unhelpful binary positions including mind-body, internal-external and subject-world. This tendency is again revealed in Chapter 6 which demonstrates the significant limitations of dual process models which are founded on a distinction between the automatic and the reflective systems of the brain. Here, again it is observed how habits are simply portrayed as the unreflexive and automatic responses to environmental cues (see also Chapters 2 and 4). Conceptually and empirically, the thesis has, therefore, demonstrates that these individualistic models

generate rather static and restricted accounts of the environments of action, which as Chapters 4, 5 and 6 highlight, severely limits their ability to explain how high carbon and resource intensive patterns of mobility have emerged and how and why they might change. The contribution of the thesis to critical studies of behaviour change also extends to the ways in which this Deweyan-inspired framework advances the social-technical transitions and theories of practice literatures.

7.5.2 Contribution to understanding low carbon mobility

The three other approaches considered provide more dynamic and relational accounts of how the social and physical contexts variously enable and constrain action (Chapter 2). The social-technical transitions literature examines the emergence, (re)production and change in environmentally problematic ways of life at a systems or macro level. The notion of 'socio-technical system' is a central concept in this literature as it recognises how heterogeneous social and technical elements come to be aligned and configured in ways 'that work'. John Urry it is observed has adopted this concept, and those of 'co-evolution' and 'path-dependency', to explain how the car has become and continues to be the dominant form of movement globally. These concepts have also been appropriated by social practice theorists as means of helping to explain how practices emerge, persist, change and disappear over time as material, procedural and symbolic elements become linked and unlinked or they attract, retain or lose those who 'carry' and perform a given practice. Deweyan pragmatism is observed to share some similarities with the socio-technical and practice theory literatures. All three approaches refuse to distinguish prematurely between the social and physical environments of action or to take certain standards or expectations such as the comfort and convenience of the car as pre-existing or given. Instead they usefully draw attention to how individual action is embedded in particular social institutions and arrangements and material or physical settings. An individual's choice to buy and routinely use a car, for instance, is always embedded within the system of automobility which makes driving possible and often necessary. Moreover, the meanings and symbolic attachments which are attached to the car co-evolve as part of this system.

A Deweyan-inspired perspective advances socio-technical and practice approaches in at least three main ways. First, their understanding of the role politics plays in

shaping action. In Chapters 2 and 4 it is argued Urry's fails to consider how the development of the system of automobility has been influenced by different political decisions which favoured particular interests, normative visions and modes of power and the ways in which these were disputed and challenged. In contrast, practice theorists have recognised the political nature of transport and urban planning and how this has and continues to influence the development of automobility. Due to their determined insistence on moving away from the individual as the central unit of analysis it is argued they tend to underplay the importance of the promotion and production of particular subjectivities which are a central aspect to the continual emergence and (re)production of, and changes in, dominant practices such as driving (Chapter 2). Chapter 4 asserts that Urry's and practice theorist's political shortcomings, as well as, the limitations of nudge theory's concept of 'choice architectures' can be redressed through the notion of habit infrastructures.

Habit infrastructures embody a Deweyan understanding of habit, custom and experience and reflect the way in which subjectivities or 'choices' are continuously conditioned but not dictated by the histories and politics of physical environments and established social norms, values and ideologies, as individuals always possess the capacity to act upon the world. This notion is further developed through an engagement with mobility scholars, especially Paterson (2007) who demonstrate that the car has come to dominate cities around the world both through state promotion and the production of (auto)mobile subjectivities. Drawing on these insights, it is demonstrated how the political and historical development of Auckland and London's urban form and transport systems have to a large degree resulted in the unique habit infrastructures of these cities and the locally specific (auto)mobile and (public)mobile subjectivities that emerge in each city.

Second, socio-technical and practice approaches in emphasising the importance of collective meanings tend to underplay the dynamic ways in which individuals make sense of and negotiate these meanings in everyday life. This argument is developed in Chapters 5 and 6 through the use of Dewey's theory of situations. Both chapters in diverse ways highlight that prevailing norms and conventions act upon and are reproduced through their habits (7.3.1). At the same time the way these norms and conventions are continually negotiated, challenged and sometimes changed by

individuals (7.3.1). Third, it is argued that although social practice theory provides a more sophisticated understanding of habit than individualistic approaches it is nonetheless limited. Such an account does recognise the role that social and physical contexts are responsible for the relative stability and longevity of habits. The central problem is, however, that habits are only understood as the outward performance of actions (cf. Schwanen et al., 2012a). There is no recognition of habits as a disposition or a capacity which is a source of stability and change, an active tendency or a force, constantly emerging out of specific environments and as fundamental to subjectivity. Consequently, social-technical and practice approaches fail to recognise the important role that habits, meanings and subjectivity play in contributing to the emergence, persistence and disappearance of unsustainable practices.

7.5.3 Future avenues for research

Policy interventions aimed at encouraging behaviour change, the reconfiguration of existing institutions and infrastructures and the development of new innovations and technologies will all be crucial for attempts to facilitate large-scale transitions to low carbon societies. This thesis argues that everyday mobility in cities presents both significant challenges and opportunities in this context. Cities are sites of high carbon emissions and energy consumption in large part due to the dominant role cars continue to play in shaping these environments and citizens' habits, meanings, experiences and subjectivities. A better understanding of how everyday mobility configured around *public* and *exposed* modes of mobility such as trains, buses, cycling and walking can potentially not only help to redress these issues but also improve the vibrancy and accessibility of cities, as well as, the experiences, health and wellbeing of citizens. More specifically, the creative potential to design policies which offer coordinated responses to these issues and recognise the ways in which social and physical environments always *condition* everyday mobility and action is where this thesis aims to encourage and inform future research.

Throughout the thesis emphasises that if behaviour change interventions are to play a meaningful role in responding to global social and environmental challenges they need to move beyond existing dominant psychological and economic models of behaviour. The growing role that soft libertarianism is playing in reframing and reshaping approaches to policy it is argued is a cause for concern for various reasons,

not least that it appears incompatible with the scale of response and the social, institutional and infrastructural changes required. The thesis thus illustrates the continuing importance for critical studies of behaviour change (Jones et al., 2013; Shove, 2010). More specifically, there is a need for future studies to further interrogate the political and ethical significance and unintended consequences of the behaviour change agenda 'as they relate to the concerns of efficacy, ethics and empowerment' (Jones et al., 2013, p. 190). Here, analyses informed by Foucauldian (Jones et al., 2013, p. 167) and feminist (Pykett, 2012) scholarship which have interrogated different behavioural strategies including nudge, and how these 'reconfigure objects of governance, modes of expertise and spaces to be governed' with implications for the 'reshaping of human subjects' may provide a productive and constructive starting point. The thesis argues John Dewey's pragmatist writings could also make a significant contribution to such attempts.

Nudge theory, on a more optimistic note, has in contrast to earlier psychological and economic theories, at least encouraged policy makers to reflect, albeit in a limited manner, on the significance of context for action and thought, and the role state and other institutional actors play in shaping these environments. Section 7.5 reiterated how a Deweyan-inspired approach, and theories of habit more generally, might overcome these limitations. There is scope for this (see also Bissell, 2014c; Schwanen et al., 2012a), as well as, other alternative theories, methodologies and approaches which take seriously socio-material relations and embeddedness of action to continue to influence and reshape existing academic and policy debates. Encouragingly, social-technical transitions (Geels, 2012; Schwanen et al., 2011), theories of consumption (Gronow & Warde, 2001; Southerton et al., 2004), and theories of practice (Shove, 2012; Spaargaren, 2011; Watson, 2012) have already begun to have some impact on this front (e.g., Darnton et al., 2011; Jackson, 2005; Southerton et al., 2011). Continued scholarship on, and evaluation of, pilot interventions or programmes, guided by these frameworks will provide no guarantee of their uptake (cf. Jones et al., 2013) but will likely be necessary to demonstrate their applicability to the development of policy and behaviour change programmes and interventions (cf. Jackson, 2005).

There are also at least three potential avenues for future research which reflect matters which have emerged out of the research and the study's limitations. First, there is scope to further explore how people's habits, meanings, experiences and subjectivities change over longer periods of time as the physical capacities and skills of their body change with age. The potential importance of better understanding such bodily transformations is illustrated in the way individuals describe how their subjectivities had changed as a result of cycling or using public transport (Chapters 5 and 6; see also Bissell, 2014a, 2014c; Schwanen et al., 2012b). Second, socio-economic relations such as class and income, occupation, gender and race and their intersections all condition people's access to and use of different mobilities (Cresswell, 2010; Hanson, 2010; Law, 1999; Waitt & Harada, 2012). The thesis, corresponding with previous scholarship, draws attention to the importance of a closer analysis of the relationship between gender and commuting (Hanson, 2010; Law, 1999; Schwanen, 2008). More specifically, reflecting how cycling remains male-dominated this thesis illustrates that there is much scope to further interrogate women's habits and experiences of cycling and how these intersect with negotiation of dress codes, changing facilities and perhaps bodily sensations of sweat including smell, touch and sight (see Waitt, 2013), in different everyday contexts including the workplace. Meanwhile, the focus on British and New Zealand migrants helps to draw attention to how city habit infrastructures condition action. This methodology could potentially help to generate insights into the dynamics of mobility and race through examining how other migrant populations adapt and adjust to new cities.

Third, in focusing on commuting the thesis does not explicitly explore the potential role that mobile working practices such as working in different locations (e.g., home, shared offices, cafes) or through virtual connections could play in attempts to decarbonise transport emissions. There is much scope to understand how mobility affects productivity, working practices and work-related experiences, meanings and subjectivities (see Brown & O'Hara, 2003; Laurier, 2004). Fourth, and consistent with the first two points above, the thesis highlights the importance of further understanding the emergence, production and promotion of non-car subjectivities. Here, Paterson (2007, p. 235) rather provocatively asks how can we 'shape people (or more precisely, given the governmentality logic, to work so that people shape themselves) for whom cycling, walking and the train become the 'normal' daily

practice?' This thesis does not explicitly consider the political and ethical significance of such a project, but does emphasise how the social and physical environments of action always *create individuals*. Reflecting earlier assertions about the unintended consequences of the behaviour change agenda, however, such questions deserve much closer attention and could helpfully contribute to recent debates on citizenship and morality in mobilities studies (see Spinney et al., 2015a; Spinney et al., 2015b).

Building on the arguments and observations the preceding chapters make the thesis draws attention to three implications for future research on sustainable and low carbon cities, economies and societies. First, it is asserted in Chapter 4 that the global rise of the car needs to be understood in the role that the growth of automobility has played in reproducing the capitalist system. There is a need for future research, therefore, to not only consider how public transport, walking or cycling might replace car journeys but more importantly how these forms of mobility might become a 'central part of an economic development process' (Paterson, 2007, p. 229). For example, Robert's (1995) has argued that a cycle-orientated economic strategy differs markedly from a conventional growth strategy (see also Paterson, 2007). Second, it is argued that the behaviour change agenda is reflective of neoliberal orientations towards policy-making which seek to create 'subjects of responsibility, autonomy and choice' (Rose, 2006, p. 155). At present it is not clear how these neoliberal modes of governance are understood and interpreted by businesses and organisational approaches to sustainability and climate change. For instance, to what extent do businesses feel responsible or accountable for the everyday mobility of their employees and how do they support low carbon modes of mobility. Third, and relatedly, this thesis illustrates how different habits interpenetrate across the different time-spaces associated with home, the commute and work. A better understanding of how habits or '*bundles* of practices' (Shove et al., 2012, p. 17) intersect will be crucial for ensuring the development of low impact lifestyles. Particular modes of mobility, especially running and cycling, can result in what were once home-based practices such as showering and eating breakfast being transferred to the work-place. What implications might this have for energy and water demand? Can efficiency gains be made through economies of scale or will an

increase in cycle commuting simply generate more demand for electricity and hot water as people start to shower more often?

These varied avenues for future research are reflective of how issues of behaviour change, climate change and everyday mobility cannot be easily disentangled from other spheres of society. In many ways this diversity mirrors Dewey's own pragmatist writings in which he traversed subjects as varied as politics, education, nature, art, thinking, habit and experience. Despite this there a number of commonalities running through his work (see Cutchin, 2008, pp. 1566-1567), which are particularly helpful for addressing global challenges such as sustainability and climate change. In particular, the thesis has argued it is his tenacious insistence on the situated, relational, more-than-individual and emergent character of action, which helps to reveal both the challenges and possible openings for developing a less carbon and resource intensive world.

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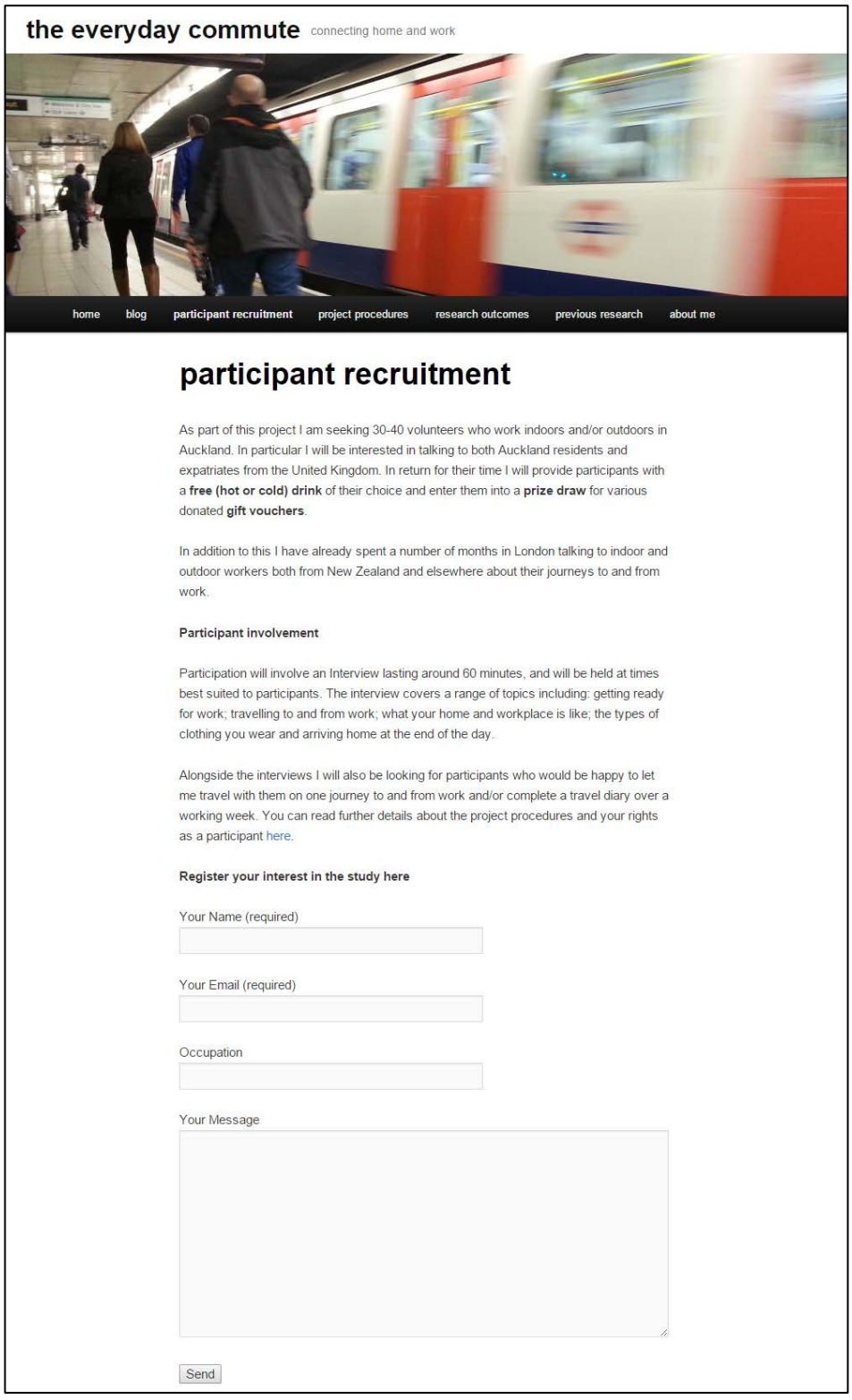
Appendices

Appendix 1. Example of the participant recruitment page on the website created mainly for the research phase of the PhD.



the everyday commute connecting home and work

home blog participant recruitment project procedures research outcomes previous research about me

participant recruitment

As part of this project I am seeking 30-40 volunteers who work indoors and/or outdoors in Auckland. In particular I will be interested in talking to both Auckland residents and expatriates from the United Kingdom. In return for their time I will provide participants with a **free (hot or cold) drink** of their choice and enter them into a **prize draw** for various donated **gift vouchers**.

In addition to this I have already spent a number of months in London talking to indoor and outdoor workers both from New Zealand and elsewhere about their journeys to and from work.

Participant involvement

Participation will involve an Interview lasting around 60 minutes, and will be held at times best suited to participants. The interview covers a range of topics including: getting ready for work; travelling to and from work; what your home and workplace is like; the types of clothing you wear and arriving home at the end of the day.

Alongside the interviews I will also be looking for participants who would be happy to let me travel with them on one journey to and from work and/or complete a travel diary over a working week. You can read further details about the project procedures and your rights as a participant here.

Register your interest in the study here

Your Name (required)

Your Email (required)

Occupation

Your Message

Send

Appendix 2. Interview schedule used during interviews in Auckland, New Zealand and London, United Kingdom

The everyday commute: connecting home and work

1 Introduction

- Introduce myself and my PhD research
- Outline what the participant's involvement will be in the project and their rights. Ask them to complete a consent form and if they are happy to have the interview recorded.

2 Living in Auckland/London

1. How long have you been living in Auckland/London?
2. How did you find living in Auckland/London?
3. How is it different from the New Zealand/British way of life? (for New Zealand British migrants)

3 Home and everyday life

4. How did you come to live in your current house?
5. What do you like doing at home?
6. What does the ideal home mean to you?
7. How far is what you do at home influenced by the wider environment?

4 Preparing for the commute to work

8. Thinking a bit more about the commute. Do you have a routine that you go through in the morning and can you describe it for me?

- What time do you get up?
- Do you shower before departing?
- How does your routine fit with others in the house?

9. How do you decide what to wear?
    - Do you take into consideration the weather?
    - How do you know what the weather is like?
    - Do you have a dress-code at work?
10. Do you carry a bag with you?
    - What do you carry in the bag?

5 The commute to work

11. Can you please describe your commute to work?
    - What do you do on your commute?
    - Do you interact with people on the commute?
    - How do you find cycling/walking in Auckland/London
    - How does your commute change with the weather/different times of the year?
12. Can you talk me through what you do when you arrive at work?
    - Do you have showers?
    - Do you have space to store things?
13. What does a normal work day involve for you?

6 The commute home

14. Do you have a routine to finish up your day at work?

15. Do you do anything different on the commute home?

16. Do you have a routine that you go through when you arrive home?

17. What would the ideal commute look like for you?

7 Meanings and experiences of comfort in everyday life

18. How have you found the British/New Zealand lifestyle? (**expatriates only**)

19. When someone mentions the word 'comfort' what do you think they mean?

20. How does comfort play a role in your day to day life?

21. Are there any places or spaces where you are more comfortable than others?

    - How comfortable do you find home, work and the commute?

22. Does temperature play a role in your notion of comfort?

8 Possible contacts/Joining them on the commute

- Ask if they know anyone else who might be interested in being involved in the study

- Explain that as part of the research I am interested in travelling with people and ask if they would be happy for me to join them on their commute.

Appendix 3. Example of the initial email sent to participants asking if it was still possible to join them on their commute in London

Hi [Interviewee's Name],

You may recall at the end of interview I asked you if you would be happy for me to join you on your commute (a 'go-along'). I will be in London from Monday 14 January until Saturday 2 February. If you are around during this time and happy for me to still join you on your commute could you please let me know what days would potentially suit you and approximately when and where you usually depart from.

My ideal scenario for the go-along is:
1. Meet you at your house/flat/apartment a few minutes (5-10 minutes) before you leave to go on your commute. This just gives me a chance to observe the final stages you go through before getting ready to depart on your commute

2. Join you on the commute to your workplace

3. A quick tour around your office (either straight after the commute, during a break or before you depart work)

4. Join you on your commute home at the end of the day

5. A quick tour around your house/flat/apartment

I am aware for various reasons that you may not necessarily be able to accommodate each of the stages. With this in mind I am happy to tailor the go-along to your specific requirements or preferences. For example, I'm quite happy to meet you close to rather than in your house and/or work place (e.g., closest bus stop/tube station) or to join you on just one leg of your commute.

Thanks in advance and I look forward to hopefully catching up with you shortly. If you are not free or available I would once again like to thank you for your involvement in the project so far.

All the best,
Brendan.